



RECORD OF IRRIGATION  
BY  
BUNDS & CHANNELS  
IN THE  
**Ranapur State,**  
**RAJPUTANA,**  
DURING THE YEARS,

1896-97—1902-03



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*Executive Engineer, P. W. D.*

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COMPLIMENTARY

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## INTRODUCTION.



The following pages contain a detailed description and record of all the Irrigation Works in the Bharatpur State at the end of the year 1902 A. D.

The State came under administration in 1894. The Public Works of the State had been much neglected since the previous direct administration by the Government of India, which was terminated in 1867 A. D. by the accession of the late Maharaja Jaswant Singh during whose minority considerable attention had been paid to the irrigation of the State. Detailed reports on this subject are to be found in the Administration Reports for Rajputana, dated 1865—1867. These reports were prepared by Captain Home, R. E., (afterwards Lieut. Colonel Frederick Home, R. E.) who superintended Public Works in the State during these years.

Most of the old irrigation works consisting of embankments and sluices appear to have been constructed in the time of Maharaja Balwant Singh (1834 A. D.) who must have had great interest and ability for such works or was well advised, for the works dating from this period were planned on a bold scale and though lacking scientific design fulfilled their purpose as long as they were kept in good repair and their occasional failures remedied. There are two long embankments each now 12 miles or more in length which were commenced at that time, each impounding and distributing the floods received from torrents having more than 1000 square miles of drainage area. Besides these there must have been nearly 100 or more small embankments or bunds built to impound local catchments, these also are crooked and uneven but well-placed and effective to catch the drainage until a large flood than usual breached them, when the gaps were mended to make the bund fairly serviceable again.

These works were kept in good order during Captain Home's superintendence of them, and a good deal was done to improve them. Masonry escapes were provided for the larger bunds, the construction of a new large reservoir from Captain Home's design was commenced, and some drainage channels had been constructed, when the further progress of these works was interrupted by the accession to full power of the late Maharaja Jaswant Singh, G. C. S. I., who cared for none of these things.

When the State again came under direct administration in A. D. 1894 it was decided to organize a State P. W. D. and Mr. J. A. Devonish, Executive Engineer, P. W. D., was appointed for that purpose in November 1894, with special instructions to conserve the water supply, the waste of which had attracted much attention owing

to the frequent swamping of British territory by floods escaping through a large breached training bank known as the Ajan bund across the border into the Agra district. The damage caused by these unrestrained floods had formed the subject of more than one Government enquiry and of a vast deal of correspondence. The outskirts of the Bharatpur City also suffered from swamping which, unrelieved by drainage, rendered the land uncultivable and made the place notoriously unhealthy. As soon as a preliminary inspection and survey of the irrigation works had been completed, the Executive Engineer found that nearly all of them were breached and that all but a very few had been abandoned. Some use was made of the floods escaping through the breaches of the Sikri bund, but with this exception there was no cultivation depending on artificial irrigation by bunds or channels. Large tracts of country were over-run with wild cattle so that it was hardly worth while attempting cultivation in some 200 affected villages. In 1895 a commencement was made of restoring and improving the old works, a large breach in the Sikri bund being first repaired in time for the floods of that year. The breaches in the upper part of the Ajan bund were also closed at the same time and the injurious flooding of British territory thereafter ceased. As demands were received, detailed projects were prepared and the restoration of the most useful of the minor works were taken in hand. In 1895 the Executive Engineer after observing the course of the Banganga floods of the preceding year perceived that it was possible to spread them out over comparatively high land hitherto unflooded by making a cut through an intervening ridge, thus at the same time relieving areas hitherto flooded excessively. This high land was mostly waste owing to the saltiness of the wells and to the wild cattle nuisance. The cut, which was at first made only 20 ft. wide, was found to be successful, the water diverted being used with avidity by the owners of the land thereby commanded. This cut which is known as the Oochain Canal was subsequently enlarged gradually to a width of 50 ft. and a system of subsidiary works such as training banks and flood regulators to feed it and minor reservoirs depending on it were constructed.

The success of this work which in 1900 irrigated 11,500 acres, the total capital cost including all subsidiary works being only Rs. 70,000 up to that date, gave encouragement to the construction of other channels to distribute the Banganga floods all of which have proved to be increasingly successful as the works connected with them are developed. Cuts will be found marked on the accompanying map taking out from the Banganga River from five different points and from the Gambhir River at three points. Any water derived from the rivers by natural spill is also utilized. During the years 1895—1900 the large bunds, such as the Sikri and Ajan bunds, have been continuously raised, strengthened, extended and improved by the addition of new masonry works, while distributing channels from the sluices have been and are still being constructed.

Nearly all the smaller works have been restored and improved. There are, perhaps, 5 per cent. of them remaining unrepaired.

The following is an abstract of areas irrigated in 1900 A. D. and the capital cost, as far as it is known, of the works on which they depend up to that date.

	Area Acres.	Cost Rs.	Remarks.
(a) Irrigated by channels from the Banganga and Gambhir Rivers and subsidiary works including the Ajan bund...	33,500	3,55,000	{ Not including cost of the Ajan and Sikri bunds before they were restored in 1895—1901, the original expenditure not being known.
(b) Irrigated by the Sikri bund and subsidiary works ...	30,000	2,40,000	
(c) Irrigated by the Bareta bund (the only storage reservoir in the State) ...	3,000	2,27,054	{ Not including Rs. 70,000 expenditure incurred before the work was abandoned in 1867 A. D.
(d) Irrigated by local catchments (village bunds) ...	15,893	1,82,362	{ Not including original cost of works abandoned previous to their restoration.
Total ...	82,393	10,04,416	

The areas quoted are those actually assessed after cultivation. There is a considerable but diminishing portion of land flooded which is not cultivated. The figures of cost will be found to compare with the amounts reported in the Annual Administration Reports expended, *viz.*

	A. D.	Rs.	
1895-1896 ...	...	75,297	{ Excluding cost of Establishment, Tools and Plant &c., amounting to about 15 per cent on this expenditure.
1896-1897 ...	...	1,98,000	
1897-1898 ...	...	1,88,780	
1898-1899 ...	...	2,01,616	
1899-1900 ...	...	2,65,904	
September 1900 up to March 1901 ...	...	74,819	
Total, Rs. ...	...	10,04,416	

The large extension of cultivation that has taken place of late years would not have been possible without the abolition of the wild cattle nuisance which has happily been effected as the result of a scheme proposed by the Executive Engineer in 1896 which was supported by Colonel Loch, Political Agent and consequently sanctioned. A preserved forest 12 square miles in area has been fenced in, and the animals more than 5,000 in number have been gradually driven into it by the employes of a special Department under the direct orders of the Political Agent, the surrounding country being thus protected from their inroads.



There is still a good deal of work to be done in improving the distribution of the floods, the goal aimed at being the entire utilization of the floods reaching the territory which can be effected by judicious regulation and by subsidiary works to afford more control.

There is only one large storage reservoir which deserves separate notice. This is the Bareta Bund which is originally designed and nearly half built by Captain Home, R. E. This was completed in 1897 according to a revised design by the Executive Engineer, and since then ducts have been added and several improvements made to render the work more secure. Owing to the fortunate circumstances of a rocky catchment and an excellent basin this work has proved unusually successful for a work of its class. The catchment area is about 70 square miles and the basin which holds 1500 million cubic feet has been nearly filled or quite filled for three successive years since the completion of the work the rainfall not exceeding 25 inches. The cost including all subsidiary works but excluding the expenditure on it before the work abandoned has been Rs. 2,27,054. In 1900 3,000 acres were irrigated from it and the area depending on it should be extended by degrees to 10,000 acres.

# Note on the Irrigation and Drainage System of the Bharatpur State.

(1900 A. D )

1. There are no perennial streams in the Bharatpur State. Inundation or irrigation is obtained from the sources and by the means described below, viz. :—

Sources of irrigation

(a) from torrential streams, either by natural spill or by means of inundation canals and training banks.

(b) from local drainage intercepted by "bunds" or embankments.

(c) from wells.

2. Three large torrential streams enter the State across its Western border, the Ruparel at the Northern end having about 1000 sq. miles of drainage area in Ulwar territory, the Banganga River in the Southern part having more than 1000 sq. miles of drainage area in Jaipur territory, and the Gambhir River at the Southern extremity having about 500 sq. miles of catchment in Jaipur and Kerouli. These streams flow only during the monsoon season, the floods generally lasting two or three days at a time. Both the Ruparel and the Banganga Rivers flow between low banks over which they spill when in flood, this peculiarity combined with the fall of the country affording great facility for irrigation.

Torrential streams.

3. The Ruparel floods as they enter the State are diverted by the Sikri bund, a fine embankment which extends for 12 miles along the Western boundary, so that they do not follow the old river valley (marked in the map by a chain of swamps extending through the Pahari and Kama pergunnahs towards the Muttra district), but are distributed through sluices at intervals, mainly in an easterly direction over the pergunnahs of Pahari, Gopalgurh, and Nagar, the distribution of the water being effected by a system of distributary channels from the sluices and shallow subsidiary reservoirs fed by these channels.

The Ruparel River

The Bharatpur State has a formal right by treaty to the use of the unimpeded flow of the Ruparel floods during the monsoon season. The irrigation derived from these floods is a valuable source of prosperity, the area of crop irrigated in a good year amounting to 30,000 acres or more.

4. The system of irrigation from the Ruparel River and throughout the Bharatpur State is to utilize the floods for inundating the land during the rainy season, when the soil becomes thoroughly saturated, a slight deposit of silt which possesses highly fertilizing properties being also left on the surface by the floods.

System of irrigatio

After the termination of the rainy season in October the water is drained off and the flooded fields are ploughed and sown for the winter crop. The subsoil retains the moisture sufficiently and at such a depth as to nourish the growing plant without the need of future irrigation. The winter rains assist in producing a heavy crop and if they fail the crops are light; or well irrigation is resorted to in order to feed them sufficiently.

the Banganga River.

5. The Banganga River spills freely over its northern bank as it passes through the State, and about midway in its course eastwards the river has left its old channel and now flows in a northerly direction towards Oochain along the Bianna Oochain road. The diversion of the river has been encouraged artificially by the use of the Bianna Oochain road as a training bank. This road is carried on a raised embankment from Nekpur to Sesar, with flood regulators and sluices at intervals, and at Oochain a canal 50 ft. bedwidth has been cut running parallel to the road which leads a portion of the floods northwards to Sesar and the vicinity of the Bharatpur City. The larger portions of the floods are however released at various points along the Bianna Oochain road through regulators discharging in an easterly direction. The flood water so discharged is again impounded and distributed by other works, the largest of which is the Ajan bund, a fine embankment extending for 12 miles across the direction of flow. The Ajan bund which commands the whole vicinity of the Bharatpur City contains a number of sluices and weirs through which the flood water can be released to irrigate the land in rear during flood time, and the sluices are also employed to empty the basin of the bund which has a contour area of 14 sq. miles.

The system of irrigation is the same as that described for the Ruparel. The Ajan bund and other reservoirs are emptied at the end of October, and the flooded land on both sides is then ploughed and sown.

The influence of the Banganga floods is specially valuable in freshening the wells and in sweetening the soil.

ent improvement  
the irrigation  
system.

6. The Banganga inundation until recent years were uncontrolled and were thus a cause of much loss to the State instead of being as now a valuable source of prosperity. The old works had been abandoned in a breached condition, immoderate flooding took place in natural depressions which become thereby uncultivable while the higher land on the margin remained unirrigated. The main principle of the irrigation system introduced since 1895 has been to spread the water out over high land, and to protect the depressions from swamping by embankments and drains.

Keladeo Jhil.

7. The Keladeo Jhil 3 miles south of the Bharatpur City is a notable depression flooded annually from the Banganga River *via* the Ajan bund. The jhil is now drained so that water can be stored in it to any desired depth, and it is partitioned by small embankments into pockets which can be flooded separately. The jhil is flooded partly for

the sake of sport and partly to induce a growth of grass for the wild cattle and game confined in the forest enclosure.

8. In addition to the Oochain canal, there are other cuts or inundation canals recently taken out from the Banganga River, one near Pathena on the North bank, one at Halena 50 ft. wide also on the North bank, and one 50 ft. wide on the South bank nearly opposite the latter which feeds the large reservoir known as the Lalpur bund. The flood water taken out of the river by cuts is either held up in shallow reservoirs or pockets, or is spread out over the land. By means of these cuts and reservoirs nearly the whole flow of the river is utilized and absorbed within the State territory. In 1900 the total area of crop irrigated from the Banganga River amounted to 32,000 acres.

Cuts of channel  
from the Bangang  
River.

9. The Gambhir River has well-defined banks and does not spill largely until it enters the old Banganga River bed. The silt of this stream is said to be highly fertile and crops are commonly grown in the river bed after the rainy season. The Gambhir River is made to spill largely into the Rupbas pergunnah at the eastern extremity of the State by means of natural and artificial channels at Dahna, Ghata, Bokoli and Shakarpur, all taking out from the southern bank. There is also a considerable natural spill from the northern bank.

The Gambhir River

This irrigation is valuable, the crops grown in the flooded land being remarkably good, but of late years the floods have been slight, and the area flooded not extensive. There have been excellent floods in July 1901.

In 1900 about 1500 acres were benefited by natural or artificial spill from the Gambhir. Irrigation works to develop the system are in progress, and in 1901 several thousand acres have been flooded.

10. It remains to describe the irrigation from local catchments. This system of irrigation is very complete in the Bharatpur State, nearly all the available catchments being impounded, so that only a small proportion of the local rainfall escapes beyond the State territory and that only in the sparsely inhabited ravine tracts in the southern extremity.

Local catchments.

The catchments impounded vary in size from  $\frac{1}{2}$  sq. mile to 10 sq. miles but the typical size may be said to be about  $1\frac{1}{2}$  sq. miles intercepted by a low earthen bank more than a mile in length.

11. These embankments, as well as the sheets of water impounded by them, are termed "bunds." The main characteristics of the Bharatpur bunds are their length and sinuosity; they wind sometimes for 2 miles or more across a shallow depression the depth of which does not usually exceed 7 ft. at a maximum.

The Bharatpu  
"bunds."

The bunds are generally thickly planted with trees which protect and consolidate the banks. During recent years the old bunds, nearly all of which had been breached and abandoned, have been restored and improved, the necessary escape weirs or bye-washes having been provided to prevent their destruction in flood time.

umber, value, loca-  
ity and acreage of  
the village bunds.

12. There are more than a hundred of these bunds, not counting the training banks (also termed bunds) of the river inundation system before described.

The local catchment bunds are numerous in the Weir, Biana and Rupbas districts ; there are few in the Dig and Kama pergunahs, and very few in the remaining part of the State.

In 1900 the area of crop irrigated by village bunds having catchment areas less than 12 sq. miles in area amounted to 19,000 acres, from which figures it will be seen that the extent of cultivation depending upon the small bunds appears to be unimportant compared with the wide spread inundations from the larger streams. The influence, however, of the small bunds in contributing to the contentment and prosperity of the villages is a sufficient reason for the present policy of the State in carefully improving and maintaining these works which are more valuable to the villagers than the mere figures of acreage would imply. The bund protects the best land in the villages and keeps up the well level. There are still some twenty small bunds to be restored.

e Bareta bund.

13. There is only one large storage reservoir in the State. This is Bareta bund, a large work commenced in 1867, abandoned on the late Maharaja's accession and completed in 1897 during the political administration of the State. This reservoir which is situated 6 miles west of Biana has a catchment area of 70 sq. miles, a storage basin of 1500 million cubic feet capacity, a water-spread when full of 4 square miles, and a maximum depth of 40 ft. below escape level. Since its completion in 1897 the bund has always received an ample supply, the basin overflowing in 1898 and being nearly filled in the other years. There are 3 ducts or distributary channels leading from the sluices to arable ground in rear, by means of which in 1899 some 3,000 acres were irrigated. The irrigated area when developed will extend to 10,000 acres. The influence of this large reservoir on the surrounding country has been remarkable, a considerable tract of waste land having come into occupation. The presence of a large sheet of water throughout the year has also attracted large game to ravines bordering the lake. Irrigation from this bund takes place continually throughout the year for both the rabi and kharif crops.

ason of irrigation-

14. From the foregoing description it will be gathered that with slight exceptions the irrigation from canals and bunds in the Bharatpur State takes place in the rainy season for the prospective benefit of the winter crop. Most of the kharif crops would be damaged by irrigation except in years of drought, though in the case of Sikri and Bareta bunds some of the intermediate crops such as rice, sugar and cotton are watered during growth. It is interesting to note that the loss of kharif or rain crops by flooding is not considered a misfortune, as it enables the more valuable rabi or winter crop to be grown in its place. The kharif is commonly sown on the chance of the floods being deficient on land which is liable to flooding. The winter crops, excepting the case

of the Bareta bund, are either not watered artificially during growth or they depend on wells.

15. There is a great deal of irrigation done by wells throughout the State. The depth to water surface in the wells in the dry season is about 35 ft. below ground level on an average. Many of the wells especially those in the central pergunnahs of the State are bitter.

Irrigation by well

According to the new Settlement Report 1,17,395 acres were irrigated by wells in 1898 A. D.; 12,040 sweet water wells and 5,882 bitter wells being then in use; of these 11,796 were of masonry. Though the bitter wells can be used partially for irrigating growing crops under certain conditions, the sweet wells which are largely used in the "Chahi" land are the more valuable. The wells are used mainly for the winter crops both at the time of sowing and for subsequent waterings. They are also used to revive the kharif crops if the rains are deficient.

Water is drawn from the wells by the ancient method of the "Charas" or leather bag drawn up over a pulley by bullocks driven down a slope. One pair of bullocks can water 6 acres, and the wells are sometimes wide enough for 2 or 3 charas to be worked at the same time. The quality and quantity of water in the wells are much improved by yearly inundations in the neighbourhood, the deep sources being generally bitter owing to lime and salts in the soil.

16. Regarding the drainage of the State, reference is invited to the attached map in which the drainage courses are indicated by arrows. Omitting the hilly tracts, there is a slight gradual fall from the North of the State to Bharatpur and a fall of about 2 feet in a mile from the South towards the City, so that the capital of the State is situated where these opposite drainage slopes meet.

Drainage lines.

The main fall of the country is however easterly towards the junction of the Jumna and Chambal Rivers, the fall in this direction being about 5 ft. in a mile.

The environs of Bharatpur City which may be easily flooded by the accumulation of floods chiefly from the South are thus nevertheless readily drainable by cuts leading in a South Easterly direction towards the Khari Nuddi, a tributary of the Chambal River, which river is the destination of all the drainage escaping from the State Territory.

Owing however to the intercepting of the natural drainage courses by canals and bunds very little drainage water now leaves the State, except by the Gambhir River in times of heavy floods.

17. The chain of swamps marked on the map in the extreme North are land-locked and undrainable except easterly towards the Muttra district. An artificial cut would be required for this purpose, as the natural outlet is blocked in British territory, the old Ruparel valley along which the swamps lie having become silted up owing to the diversion of the stream.

Swamps in the No

The swamping of the valley has, however, been obviated recently by the restoration of the Sikri bund which now intercepts the Ruparel floods so that the swamps which used to be fed by floods escaping through breaches in the bund do not now exist permanently.

drainage and protection of low-lying land from swamp-  
ing.

18. The other parts of the Bharatpur State which formerly suffered from excessive flooding have now been relieved by diversion of the floods or by drainage. Unless the floods are controlled the environs of the Bharatpur City may lie in swamp throughout the greater part of the year, but it is now possible to keep the flooding in control so that only a moderate inundation of the low-lying land to the S. W. of the City is allowed, from which source the Fort moat is filled annually as soon as the flood water has become fairly clear.

If there is any surplus water in the depression after filling the Fort moat, the same can be drained off in a S. E. direction by means of an underground masonry channel passing through the City.

former swamping of the environs of the Bharatpur City.

19. In former times, especially in time of war, the outskirts of the City used to be flooded from the North by means of the neighbouring Motijhil bund as well as from the S. W., the object being defence. The ditch outside the ramparts was then filled with water, thus rendering an assault extremely difficult.

the City.

20. The Fort drains into the moat surrounding it, and the City is mostly drained into the outer ditch which is itself undrainable except by pumping. The amount of storm water discharged into the ditch is however comparatively small, so that the ditch soon dries up and is not offensive provided that no flood water is admitted into it from outside. In the latter case the water in the ditch would remain throughout the year and becoming putrid by contamination with sewage would become a serious nuisance and a menace to the public health.

the fort moat.

21. The moat round the fort is revetted by masonry walls. It is about  $1\frac{1}{2}$  miles in circumference, 200 feet wide, and 30 ft. deep when full. The moat has only once been dry in the memory of the present generation, and then probably owing to a prolonged failure of floods during successive years.

In June 1900 the water in the moat was 20 ft. deep, having been reduced by only 10 ft. in depth at the end of the hot season, although there is some drain on it for the irrigation of gardens in addition to the loss by percolation and evaporation.

Owing to the large concentrated volume of the water in the moat, it does not at any time become sufficiently impure to become a nuisance. Fish thrive in it, and it is a feature of great utility and interest to the City.

irrigation & drainage near the City.

22. During recent years considerable attention has been paid to the drainage of streets and low-lying ground outside the City, and storm water passes off with fair rapidity. A good deal has been done towards the filling up of small undrainable hollows in which stagnant water ac-

cumulates, but owing to the method formerly prevalent of building mud huts from soil dug in pits here and there according to the convenience of the builders, there remain a large number of insanitary excavations which should be filled up gradually as funds are available.

The dismantling of congeries of ruined or insanitary huts and the restoration of the mud in the walls to the pits from which it was dug is especially desirable wherever it is possible to arrange for the acquirement of the huts.

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## ARRANGEMENT OF WORKS

### By SUB-DIVISIONS.

The irrigation works of the State have been grouped and managed in Sub-Divisions located as follows, (*vide* map attached):—

**SEWAR SUB-DIVISION.**—Sewar, Bharatpur or Deorhi pergunnah, and parts of Rupbas, Akheygarh and Kumher.

**BARETA SUB-DIVISION.**—Bareta, part of Rupbas and Biana pergunnahs East of the Gambhir River.

**WEIR SUB-DIVISION.**—Weir, Bhusawar, part of Akheygarh and Biana pergunnahs West of the Gambhir River.

**SIKRI SUB-DIVISION.**—The Sikri bund and all the pergunnahs North of Dig.

In the following pages the works are described in the order of these Sub-Divisions :—



*List of irrigation works in the Bharatpur State, Rajputana, (1902 A. D.)*

Reference number, <i>vide</i> Index map.	Name of Irrigation work.	Page number in this record.	Remarks.
SEWAR SUB-DIVISION.			
1	Ajan Bund ... ..	26	
2	Atal „ ... ..	} 32	
3	Keola Deo Jhil ... ..		
4	Jatoli Channel ... ..	} 34	
5	Noh Bund ... ..		
6	Bhandor Bund ... ..	} 36	
7	Moti Jhil „ ... ..		
8	Gol Bagh „ ... ..	} 38	
9	Churari „ ... ..		
9a	Khemra „ ... ..		
10	Oochain Biana Road Embankment ... ..	40	
11	Oochain Canal ... ..	} 42	
12	Oochain Sear Road Embankment ... ..		
13	Par Bagdhari Channel ... ..	} 46	
14	Kharka Bund ... ..		
15	Barkoli Channel ... ..		
16	Kharera Bund ... ..		
17	Fatehpur „ ... ..	} 48	
18	Bhot „ ... ..		
19	Sukhawali „ ... ..		
20	Sheorana „ ... ..		
21	Sewar „ ... ..	} 50	
22	Anah „ ... ..		
23	Murwara „ ... ..		
24	Nekpur „ ... ..		

*List of irrigation works in the Bharatpur State, Rajputana, (1902 A. D.)*

Reference number, vide Index map.	Name of Irrigation work.				Page number in this record.	Remarks.
25	Kundher Channel	...	...	}	52	
26	Pinghora "	...	...			
27	Alipur Bund ...	...	...			
28	Alipur Channel	...	...			
29	Bichhaondi Bund	...	...	}	54	
30	Baseri "	...	...			
31	Shahna "	...	...			
32	Richholi "	...	...			
33	Helak "	...	...	}	56	
34	Bhutawali "	...	...			
35	Pichuna Canal...	...	...		58	
BARETA SUB-DIVISION.						
36	Bareta Bund ...	...	...		66	
37	Paharpur " ...	...	...	}	70	
38	Bansi Kacha Bund	...	...			
39	Kherli "	...	...	}	72	
40	Ahlow "	...	...			
41	Mahalpur Chura Bund	...	...	}	74	
42	Gujar Baroli Lower Bund	...	...			
43	" " Upper " ...	...	...	}	76	
44	Duharda " ...	...	...			
45	Dahna Channel	...	...	}	78	
46	Bokoli " ...	...	...			
47	Ghata " ...	...	...	}	78	
48	Nagla Jatwansi Bund	...	...			
49	Doomaria " ...	...	...			

*List of irrigation works in the Bharatpur State, Rajputana, (1902 A. D.).*

Reference number, <i>vide</i> Index map.	Name of Irrigation work.				Page number in this record.	Remarks.
50	Khera Rudawal Bund	...	...	...	78	
51	Tontpur	"	...	...	80	
52	Baseri	"	...	...		
53	Pura Maloni	"	...	...		
54	Maloni Lower	"	...	...	82	
55	Maloni Upper	"	...	...		
56	Neoharda	"	...	...		
57	Samri	"	...	...	84	
58	Jatwansi	"	...	...		
59	Binowa	"	...	...		
60	Mahalpur Baghwala Bund...		...	...	86	
61	Sirronch Bund	...	...	...		
62	Badleshwar	"	...	...		
63	Churari	"	...	...	88	
64	Gothra	"	...	...		
65	Tarvijpur	"	...	...		
66	Kheria Jat	"	...	...	90	
67	Samahad	"	...	...		
68	Jaisora	"	...	...	92	
69	Khan Surjapur	"	...	...	94	Not yet repaired.
70	Rani	"	...	...		
71	Singhania	"	...	...		
72	Chehalpur	"	...	...	95	Do.
73	Kani Doondi	"	...	...		
74	Bysora	"	...	...		
75	Basai	"	...	...		

irriga.  
unds and  
1896/97.

( 11 )

und in f irrigation works in the Bharatpur State, Rajputana, (1902 A.D.)

Refere ber, map	Name of Irrigation work.			Page number in this record.	Remarks.
76	Ghuneni Bund	...	...	95	Not yet repaired.
77	Sultanpur Bund	...	...		
78	Bhawanpura Bund	...	...		
79	Samesra Bund	...	...	96	Do.
80	Qasba Rupbas Bund	...	...		
81	Shekhpur Bund	...	...		
82	Kanjar Baroli Bund	...	...	97	Do.
83	Jatroli 2 Bunds	...	...		
84	Mahi Bund ...	...	...		
85	Doomaria Bund	...	...	97	Do.
86	Rajpura Bund...	...	...		
WEIR SUB-DIVISION.					
87	Halena Canal ...	...	...	104	
88	Pathena Canal	...	...		
89	Lalpur Canal ...	...	...	106	
90	Lalpur Bund ...	...	...		
91	Jiwad Bund ...	...	...	108	
92	Jatpura Bund ...	...	...		
93	Lohasa „ ...	...	...	110	
94	Oohlloo Canal...	...	...		
95	Ataripura Bund	...	...	112	
96	Malpur „	...	...		
97	Khirni „	...	...	114	
98	Nayagaon „	...	...		
99	Dayapur „	...	...	114	
100	Gadhi „	...	...		

*List of irrigation works in the Bharatpur State, Rajputana, (1902 A. D.)*

Reference number, vide Index map.	Name of Irrigation work.	Page number in this record.	Remarks.
101	Boraj Bund ... ..	114	
102	Bhusawar Bund ... ..	116	
103	Nimli " ... ..		
104	Raipur " ... ..		
105	Bhondgaon " ... ..	118	
106	Jaggiwanpur " ... ..		
107	Mokroli " ... ..		
108	Bhopur " ... ..	120	
109	Lakhanpur " ... ..		
110	Mohari " ... ..		
111	Kota Patti " ... ..	122	
112	Lalchand " ... ..		
113	Raniwala " ... ..		
114	Umrend " ... ..	124	
115	Morodha " ... ..		
116	Khori " ... ..		
117	Rajgarh " ... ..	126	
118	Qasba Biana Bund ... ..		
119	Bhimnagar " ... ..		
120	Murki Bund, No. 1 ... ..	128	
121	" " No. 2 ... ..		
122	" " No. 3 ... ..		
123	Kanawar Bund ... ..	130	
124	Jalkhor " ... ..		
125	Bagren " ... ..		
126	Khatnawali Bund ... ..		

*List of irrigation works in the Bharatpur State, Rajputana, (1902 A.D.)*

Reference number vide Index map.	Name of Irrigation work.			Page number in this record.	Remarks.
127	Bhagora	Bund No. 1. ...	...	130	Not yet repaired
128	Damdama	"	...	132	
129	Mehloni	"	...		
130	Bullabgarh	"	...	134	
131	Bansi	"	...		
132	Shahpur	"	...	136	
133	Alipur	"	...		
134	Kaml Hauz	"	...	138	
135	Sita	"	...		
136	Kair	"	...		
137	Khan Khera	"	...		
138	Shergarh	"	...		
139	Samraya	"	...		
140	Sursena	"	...	140	
141	Kanawar	" No. 2 (Pucca)	...		
142	Suhans	"	...		
143	Ajronda	"	...		
144	Samogar	"	...		
145	Bidiari	"	...		
SIKRI SUB-DIVISION.					
146	Sikri Bund	...	...	146	
147	Nagar Channel	...	...	148	
148	Boodly Bund	...	...		
149	Gopalgarh	"	...	150	
150	Alampur Bund (including Gangora extension.)				
151	Kaithwara	"	...		

*List of irrigation works in the Bharatpur State, Rajputana, (1902 A. D.)*

Reference number, <i>vide</i> Index map.	Name of Irrigation work.				Page number in this record.	Remarks.
152	Ghagwarī Bund	...	...		152	
153	Ramp "	...	...			
154	Pathrali "	...	...			
155	Satwari "	...	...		154	
156	Dabak "	...	...			
157	Bayari "	...	...			
158	Dhand "	...	...		156	
159	Kurkan "	...	...			
160	Dehri "	...	...			
161	Papra "	...	...		158	
162	Kakra "	...	...		160	
163	Shisham "	...	...			
164	Kuchaoti "	...	...			
165	Sablana "	...	...		162	
166	Angraoli "	...	...			
167	Kalawta "	...	...			
168	Bolkhora "	...	...		164	
169	Ghata "	...	...			
170	Home's Canal	...	...			
171	Pasopa Bund	...	...		166	
172	Nigori "	...	...			
173	Endroli "	...	...			
174	Karmuka Nagla Bund	...	...		168	
175	Dabora Bund	...	...			
176	Hayatpur "	...	...			
177	Chulehra "	...	...		170	

*List of irrigation works in the Bharatpur State, Rajputana, (1902 A. D.)*

Reference number, <i>vide</i> Index map.	Name of Irrigation work.				Page number in this record.	Remarks.
178	Baldeobas	Bund	...	...	} 172	Not yet repaired.
179	Murar	"	...	...		
180	Jhal Jhali	"	...	...		
181	Hebatka	"	...	...	} 174	
182	Oorki	"	...	...		
183	Hazari	"	...	...		
184	Imlari	"	...	...		
185	Gulpara	"	...	...	} 175	
186	Darwana	"	...	...		
187	Nagal	"	...	...		
188	Ghati	"	...	...		
189	Mallanka	"	...	...		
190	Baroli	"	...	...	} 176	
191	Bansoli	"	...	...		
192	Janother	"	...	...		
193	Usrani	"	...	...		
194	Ajow-Pawa	"	...	...		
195	Suketra	"	...	...	} 177	
196	Sahrai	"	...	...		
197	Thun	"	...	...		
198	Borai	"	...	...		



*Abstract of area irrigated by bunds and channels in the Bharatpur State, during the years 1896—1903 A. D.*

No.	Rainfall in inches measured at Bharatpur City.		12-36	11-10	25-25	14-90	27-37	16-60	30-55	REMARKS.
	P. W. D. Sub-Divisions and Pergunnahs.	Crops.	1896-97 A. D. Sambat 1952-53.	1897-98 A. D. Sambat 1953-54.	1898-99 A. D. Sambat 1954-55.	1899-00 A. D. Sambat 1955-56.	1900-01 A. D. Sambat 1956-57.	1901-02 A. D. Sambat 1957-58.	1902-03 A. D. Sambat 1958-59.	
1	SEWAR— Bharatpur Pergunnah and part of Rupbas, Kumbher and Akhey- garh Pergunnahs.	{ Kharif ... Rabi ... Total ...	...	...	...	...	5,773	4,509	11,404	Kharif and Rabi crops not record- ed separate- ly till 1900 A. D.
2	BANETA— Rupbas and part of Biana Per- gunnahs.	{ Kharif ... Rabi ... Total ...	19,291	41,001	41,828	49,434	51,159	26,780	72,718	
3	WEIR— Weir and part of Biana and Akheygarh Pergunnahs.	{ Kharif ... Rabi ... Total ...	...	...	...	...	4,342	6,035	2,947	
4	SIKRI— Pahari, Kama, Dig and Nagar Pergunnahs.	{ Kharif ... Rabi ... Total ...	...	...	...	...	11,976	6,395	3,984	
		Total ...	...	...	...	...	29,658	17,331	20,306	
		Total ...	1,005	9,806	17,109	18,921	41,634	23,726	24,290	
		{ Kharif ... Rabi ... Total ...	...	...	...	...	50,208	20,029	22,133	
		Total ...	...	...	...	...	41,253	28,256	28,954	
		Total ...	58,612	90,871	44,915	46,998	91,461	48,285	51,087	
		Kharif ...	...	...	...	...	72,299	36,968	40,468	
		Rabi ...	...	...	...	...	1,33,611	86,886	1,45,787	
	Total ...	Bighas ...	75,991	1,44,338	1,07,120	1,33,366	2,05,910	1,25,854	1,86,255	
		Acres ...	31,597	57,735	42,848	53,347	82,364	50,343	74,502	





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## SEWAR SUB-DIVISION.

(Bharatpur and part of Rupbas, Akheygarh  
and Kumber Pergunnahs.)

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## BHARATPUR STATE.

## SEWAR SUB-DIVISION.

*Statement of areas cultivated after irrigation by bunds and channels.*

Serial No.	Name of Irrigation work.	1896-1897 A. D.	1897-1898 A. D.	1898-1899 A. D.	1899-1900 A. D.	1900-1901 A. D.	1901-1902 A. D.	1902-1903 A. D.
	RAINFALL IN INCHES MEASURED AT SEWAR.	...	...	...	...	...	...	...
		...	22-51	16-92	17-64	21-75	14-36	30-76
1	Ajan bund ...	5,364	9,037	12,842	23,818	15,208	11,835	31,928
2	Atal " ...	...	696	240	419	571	370	1,480
3	Keoladeo Jhil ...	...	(not used for cultivation.)					
4	Jatoli channel ...	...	1,887	285	1,005	847	nil	1,445
5	Noh bund ...	nil	217	...	...	...	...	
6	Rhandor bund ...	1,556	1,926	751	960	2,455	nil	1,910
7	Moti Jhil bund ...	4,389	nil	nil	2,752	170	nil	535
8	Golbagh bund ...	...	520	323	296	619	nil	426
9	Churari bund ...	...	4,646	5,785	2,977	nil	nil	...
9a	Khemra bund ...	...	...	...	...	...	...	258
10	Oochain Biana road embankment.	1,344	2,354	2,499	2,067	8,575	6,724	8,494
11	Oochain Canal, &c. ...	6,638	7,229	7,261	4,297	5,130	3,358	6,932
12	Oochain Sewar road embankment.	...	...	...	...	...	...	
13	Par Bagdhari channel ...	...	600	1,093	482	993	1,266	1,719
14-15	Kharka bund and Barkoli channel	...	1,653	983	565	890	nil	1,010
16	Kharera ...	...	1,276	1,100	503	1,277	nil	844
17	Fatchpur bund ...	...	1,542	1,369	562	2,138	nil	1,633
18	Bhot bund... ...	...	nil	nil	nil	2,527	nil	3,027
19	Sukhawli bund ...	...	508	619	844	1,492	88	722
20	Sheorana bund ...	...	1,632	1,852	1,617	1,592	350	1,545
21	Sewar bund ...	...	4,007	3,300	2,367	3,211	2,239	4,043
22	Anah bund ...	...	208	68	145	82	nil	222
23	Murwara bund ...	...	nil	nil	nil	527	87	2,940
24	Nekpur bund ...	...	663	306	1,674	3,616	767	1,179
	Carried over (bigbas)	19,291	41,001	40,676	47,350	51,920	27,084	72,292

## BHARATPUR STATE.

## SEWAR SUB-DIVISION.

Statement of areas cultivated after irrigation by bunds and channels.

Serial No.	Name of Irrigation work.	1896-1897 A. D.	1897-1898 A. D.	1898-1899 A. D.	1899-1900 A. D.	1900-1901 A. D.	1901-1902 A. D.	1902-1903 A. D.
			Areas expressed in bighas. (Note- 1 bigha = $\frac{2}{3}$ an acre).					
	Brought forward ...	19,291	41,001	40,676	47,350	51,920	27,084	72,292
25	Kundher channel ...	(included in Nekpur bund.)						
26	Pinghora " ...	nil	nil	1,152	562	747	296	94
27, 28	Alipur bund and channel ...	(constructed in 1899-00 A. D.)						
		nil	nil	nil	327	995	712	nil
29	Bichhaondi bund ...	...	...	...	...	...	...	...
30	Baseri " ...	(constructed in 1899-00 A. D.)						
		nil	nil	nil	1,195	nil	nil	...
31	Shahna " ...	...	...	...	...	...	...	...
32	Richholi " ...	(constructed in 1900 A. D.)						
		...	...	...	...	3,270	3,197	4,408
33	Helak " ...	(constructed in 1901 A. D.)						
		...	...	...	...	...	...	1,165
34	Bhutawali " ...	(constructed in 1902 A. D.)						
		...	...	...	...	...	...	484
35	Pichuna canal (from the Gambhir river.)	(constructed in 1902 A. D.)						
		...	...	...	...	...	...	5,679
Total Sear								
Sub-Division								
	Bighas ...	19,291	41,001	41,828	49,434	56,982	31,289	84,122
	Acres ...	7,717	16,400	16,731	19,773	22,777	12,516	33,649



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## Details of Irrigation Works

IN THE

### SEWAR SUB-DIVISION.

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NOTE 1.—In the following pages “Contour area” means the area submerged within the bund when the storage basin is full up to escape level and the “contents” is the cubic storage capacity up to escape level.

NOTE 2.—1 bigha =  $\frac{2}{3}$  an acre.



**BHARATPUR STATE.**  
**SEWAR SUB-DIVISION.**

*Cultivated area measured as irrigated by each irrigation work  
during the years.*

Serial num- ber.	Name of Irriga- tion work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
1	Ajan bund—	Areas expressed in bighas. (Note.—1 bigha= $\frac{2}{3}$ an acre.)						
	<i>Kharif crops</i> ...	...	...	...	3,500	802	2,178	4,888
	<i>Rabi crops</i> ...	...	..	...	20,318	14,400	9,657	27,040
	<i>Total area crop- ped on land ir- rigated.</i> }	5,364	9,037	12,842	23,818	15,208	11,835	31,928
	Carried over b'ghas.	5,384	9,037	12,842	23,818	15,208	11,835	31,928

## AJAN BUND.

*Report dated 1900 A. D.*

The Ajan bund is an earthen bank about 12 miles long extending from Šekroda through Ajan to Aghapur and thence after a sharp bend continuing nearly in a straight line to Mundoli, 4 miles S. W. of the Bharatpur City.

The use of the bund is to train and distribute the floods of the Banganga River which reach the bund from a S. W. direction, the fall of the country being N. E. from the river bank. The river spills over its low banks at various points along its course through the Bharatpur State and the greater part of the floods spilled over the bank between Farsu and Kurka finds its way by natural flow into the basin of the Ajan bund.

The bund is said to have been first constructed by Maharaja Suraj Mal, having been afterwards extended by degrees. In the time of the late Maharaja Jaswant Singh the bund was frequently breached and temporarily repaired, being ultimately abandoned in a dilapidated condition.

In the years 1895—1900 the bund has been gradually restored, having been raised and strengthened and provided with necessary escape power, the old sluices and weirs having been remodelled and a new escape weir 200 ft. wide built. By these means a larger quantity of water can be retained by the bund without danger of a breach than formerly. No breach has occurred since 1896 A. D.

The maximum depth of water stored is about 10 ft. at the bund and the water spread over the land submerged in front of the bund about 14 sq. miles. The bank is now not less than 10 ft. wide at the top with a front slope of 4 to 1 and escape weirs 87 ft., 200 ft., 44 ft. wide, respectively. The top of the bund is 6 ft. above escape level.

The areas reported as irrigated including both cultivated and uncultivated land during recent years are as follows :—

1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.
		Bighas		
not known	11,700	33,000	33,400	56,935

These figures compared with those of the area cultivated show that the greater part of the land irrigated is not cultivated. The explanation of this circumstance is that all the cultivation previously to A. D. 1896 had been abandoned for many years owing partly to the bund being breached but chiefly owing to the wild cattle nuisance which laid waste all the land in the neighbourhood.

The gradual increase of cultivation is due to the restoration of the bund accompanied by the abolition of the wild cattle nuisance and to the gradual resettlement of the land. In A. D. 1899-1900 the floods closed early in the year and the winter rains failed otherwise there would have been a considerably larger area of land cultivated. The ultimate future cultivation of all the land irrigated has been arranged by the Settlement Commissioner. The Keoladeo Jhil which is uncultivable is included in the area reported as irrigated. There is generally an ample supply from the floods of the Banganga River.

The Ajan bund commands the Bharatpur City and all the neighbouring country ; water can be let out through the sluices into distributary channels to irrigate land in rear, or to fill subsidiary reservoirs. The Bharatpur City water supply now depends on the Ajan bund, the fort moat and the tanks in the suburbs being filled by water supply channels from it. When the bund was breached and abandoned the floods also found their way by natural flow into shallow depressions in the vicinity of the city, known as the Atal bund and the Keoladeo Jhil, from the former of which the moat can be filled, but owing to the want of the control now afforded by the bund the swamping of the land near the city was then excessive and productive of much unhealthiness. The Ajan bund is therefore not only valuable as an irrigation work but also to control the flooding and water supply system of the city and neighbourhood. The Keoladeo Jhil is now drained so that any desired quantity of water may be kept in it. It is fed by a channel from the Ajan bund and drained by a channel discharging into the Noh bund, a branch of which channel is used to fill the tanks near the Bharatpur Agency. The deep well sources being salt, it is necessary to refresh the wells annually by filling the tanks from which the wells derive a supply by percolation. The improvement of the Ajan bund distributary system is still in progress.

## AJAN BUND.

*Executive Engineer's Report, 1902 A. D.*

During the years 1900—1902 a change has been developed in the course of the Gambhir River. This river is now the main source of supply while the floods of the Banganga River have been diverted and distributed so that they do not enter the basin of the Ajan bund in sufficient volume to fill it.

The Gambhir floods derived from a rocky catchment of about 1,000 square miles are more than enough to fill the storage basin of the bund to its utmost capacity. Formerly these floods passed the southern extremity of the bund and flowed mainly within the Gambhir river bed towards Khauwa and Fatehpur Sikri. Near the villages Mundholi and Ratwa the river used to take a sharp bend, but during the last 2 years a spill on the left bank has developed and increased until in August 1902 the river entirely left its old channel round the bend and continued in a straight course for the Ajan bund. The result of this important change is that the bund now receives the entire discharge of the river. In August 1902 a heavy flood occurred which poured into the basin of the bund in greater volume than the weirs and sluices were capable of discharging, the result being that the water level rose till the bund was topped and breached in two places, one at Dhobi Deh near Sewar and the other near Ajan at the opposite extremity. The former breach has been repaired but the lower one has been kept open in order to prevent so heavy an accumulation of floods occurring again. The water discharged through this breach takes its course towards Fatehpur Sikri as formerly the Banganga floods did before the bund was repaired. If this breach is repaired adequate escape power should be added. There is a cross bund near the Ajan village which is capable of being made an important work adding largely to the area of cultivation and shielding the main bund from the effect of the sudden floods. The portion of the main bund above this cross bund should be provided with adequate escape power. The quantity of water admitted into the main basin can then be regulated as desired.

The alteration of the course of the Gambhir river may produce complaints both from the Agra District where the floods are not wanted, and from the Rupbas district which will be left without its usual flooding unless the former course of the river previous to the recent change is restored partially. For this purpose a channel should be cut through the lately formed deposit filling the river bed so as to draw a portion of the flood towards Rupbas.

The Ajan bund will probably receive ample floods for some years to come and the control of these floods is a matter demanding careful attention. In order to avoid injurious flooding of the out-skirts of the Bharatpur City the sluices of the Ajan bund should be opened immediately at the out-set of a heavy flood and the surplus supply discharged

should be stored in the Keola Deo Jhil whence it can be passed to other reservoirs when desired. The bank of the Ajan bund is strong enough provided that a greater head of water than 3 feet above the escape weirs is not allowed to accumulate. It is desirable to add escape power. One new weir 200 feet long should be built at Khandera in the northern limb discharging towards the Bharatpur Ghunna and another of the same size in the southern limb discharging towards the Fatehpur Sikri district; meanwhile without these additions the bank can be kept intact by careful watching and by partial release of the floods through the sluices as soon as the level of water approaches within 6 feet of the top of the dam.

Total expenditure incurred up to the end of 1902 A. D.  
Rs. 96,476.



## Bharatpur State.

## SEWAR SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Areas expressed in bighas. Note—1 bigha = $\frac{2}{3}$ an acre.)					
2	Brought forward..	5,364	9,037	12,842	23,818	15,208	11,835	31,928
	Atal bund—							
	<i>Kharif crops</i> ...	...	...	...	87	...	...	107
	<i>Rabi crops</i> ...	...	...	...	332	...	...	1,373
	<i>Total area cropped on land irrigated.</i> }	...	696	240	419	571	370	1,480
3	Keola Deo Jhil—	...	The land within the Jhil is not used for cultivation.					
	Carried over ... (bighas.)	5,364	9,733	13,082	24,237	15,779	12,205	33,408

2. The Atal bund is situated close to the S. W. of the city, forming a part of the circular road round the ramparts. It receives floods from the Banganga River diverted by the Ajan bund. It was constructed in the time of Major Morrison, Political Agent.

There is a masonry sluice in it and a channel leading from it underneath the city to the fort moat, a branch of which leads to the Gulal Kund drain discharging towards the Golbagh and Noh bunds.

Previously to 1895 A. D. there was no cultivation in the Atal bund owing to the neglect of drainage, the land lying in swamp too late to be sown. It is necessary to partly fill the bund in order to supply the fort moat and to give water for washing purposes near the city, but the flooding of the outskirts of the city is objectionable for sanitary reasons. The drainage course supplying the Atal bund is crossed by the embanked road from Sesar to the Agency underneath which there is a sluice known as Kunj Behari. The supply to the Atal bund can be controlled by this sluice.

Contour area of land submerged within the bund at sluice level (centre of pipe) 1,400 bighas, contour area when the bund is full about 2,500 bighas, depth of water when the bund is full  $11\frac{1}{2}$  feet. A gauge of  $8\frac{1}{2}$  feet at sluice is required in order to command the fort moat and if possible a greater depth of water than 9 feet should not be allowed to accumulate on account of sanitary objections.

Total expenditure up to end of 1902 A. D., Rs. 1,719.

3. The Keola Deo Jhil is situated 3 miles south of the Bharatpur city within the Ghunna or preserved jungle. The Jhil which is fed by the Ajan bund is only useful for sport and for wild cattle pasture. It can be used as a subsidiary reservoir when the Ajan bund is full and the water can be run out when desirable by means of the Jatoli channel for irrigation and water supply. The area of land submerged within the Jhil when it is full up to road level is about 3 square miles. Mean depth when full about 3 feet. The Jhil is usually dry before the hot weather begins, and the bed of it then furnishes an excellent grazing ground for the wild cattle and black buck confined within the fencing of the Ghunna. In 1902 A. D. the Jhil was filled 2 feet deep above the road level at Keola Deo and nearly the whole of the Ghunna was thereby flooded.

Total expenditure up to end of 1902 A. D., Rs. 1,505.



## Bharatpur State.

## SEWAR SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)						
	Brought forward	5,364	9,733	13,082	24,237	15,779	12,205	33,408
4	Jatoli channel—							
	<i>Khariif crops</i> ...	...	...	...	58	...	...	
	<i>Rabi crops</i> ...	...	...	...	947	...	...	
	<i>Total area crop- ped on land irrigated.</i> }	...	1,887	285	1,005	...	...	
5	Noh bund—							
	<i>Khariif crops</i> ...	...	...	...	...	13	...	92
	<i>Rabi crops</i> ...	...	...	...	...	834	...	1,353
	<i>Total area crop- ped on land irrigated.</i> }	...	217	...	...	847	...	1,445
	Carried over (bighas.) ...	5,364	11,837	13,367	25,242	16,626	12,205	34,853

4. *Jatoli Channel*.—This channel was constructed in 1896 A. D., it is of 10 feet bed-width and 3 miles long. The surplus water of the Keola Deo Jhil can be discharged by this channel to be used for irrigation and water supply.

The main channel discharges into the Noh bund and a branch of it leads water to the Bharatpur Agency.

Total expenditure up to the end of 1902 A. D., Rs. 5,146.

5. The Noh bund was restored in 1897 A. D., at a cost of Rs. 5,020, it is a strong earthen bank 18 chains long provided with a sluice and an escape weir. It is situated below the Golbagh bund across the same depression and receives drainage escaping from it in addition to the supply from the Ajan bund direction by means of the Jatoli channel. The bund was filled up to escape level in 1899 A. D., and in 1902 A. D., and can be filled in any year of good rain from the Keola Deo Jhil.

Contour area of land submerged within the bund about 1,000 bighas. Contents of the reservoir about 43 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 8,029.

## Bharatpur State.

## SEWAR SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)								
6	Brought forward	5,364	11,837	13,367	25,242	16,626	12,205	34,853
	Bhandor bund—							
	<i>Kharif crops</i> ...	...	...	...	...	18	...	40
	<i>Rabi crops</i> ...	...	...	...	...	2,437	...	1,870
	<i>Total area cropped on land irrigated.</i> }	1,556	1,926	751	960	2,455	...	1,910
7	Moti Jhil bund—							
	<i>Kharif crops</i> ...	...	...	...	...	14	...	9
	<i>Rabi crops</i> ...	...	...	...	...	156	...	526
	<i>Total area cropped on land irrigated.</i> }	4,389	...	...	2,752	170	...	535
	Carried over (bighas.) ...	11,039	13,763	14,118	26,954	19,251	12,205	37,298

6. The Bhandor bund is situated 1 mile north-east of the 5th mile of the Bharatpur Kumher road across a depression leading from Dig to Bharatpur. It is supplied by Home's canal which drains swampy land in the Dig District. The bund was made by Maharaja Balwant Singh and afterwards was breached and abandoned. It was restored by the State P. W. D. in 1896 at a cost of Rs. 2,400. It has since been maintained in good order. It is a low earthen bank 17 chains long provided with 3 sluices and a natural escape which discharge towards the Moti Jhil.

Contour area of land submerged within the bund about 400 bighas.  
Contents of the reservoir about 17 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 4,294.

7. The Moti Jhil bund is situated about 1 mile to the west of the Bharatpur City, it is supplied by drainage from the north. The bund was used formerly to flood the environs of the city for purposes of defence in war time. It is an earthen bank nearly 2 miles long, furnished with 4 sluices. The bund was repaired and improved in 1896 by the State P. W. D. at a cost of Rs. 4,500 and has since been maintained in good order. It receives a supply only in years of good flood. The fort moat can be filled from the sluices.

Contour area of land submerged within the bund about 2,400 bighas.  
Contents of the reservoir 125 million cubic feet.

Total expenditure up to end of 1902 A. D., Rs. 4,686.

## Bharatpur State.

## SEWAR SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-00 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)						
	Brought forward.	11,309	13,763	14,118	28,958	19,251	12,205	37,298
8	Golbagh bund—							
	<i>Kharif crops</i> ...	...	...	...	...	54	...	40
	<i>Rabi crops</i> ...	...	...	...	...	565	...	386
	Total area cropped on land irrigated. }	...	520	323	296	619	...	426
9	Churari bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	...
	Total area cropped on land irrigated. }	...	4,646	5,785	2,977	...	...	...
9a	Khemra bund—					(area included in irrigation by Oochain canal.)		
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	258
	Total area cropped on land irrigated. }	...	...	...	...	...	...	...
	Carried over (bighas.)	11,309	18,929	20,226	32,227	19,870	12,205	37,982

8. The Golbagh bund is situated 1 mile above the Noh bund near the Bharatpur Agency. It is supplied by local drainage and from the Ajan bund. The bund was made in the time of Maharaja Jaswant Singh. It was repaired by the State P. W. D. in 1896 at a cost of Rs. 4,000. The bund is used to irrigate the Golbagh garden. The bund can be filled from the Atal bund by means of an underground channel through the city which is connected with the Gulal Kund drain.

Total expenditure up to the end of 1902 A. D., Rs. 5,616.

9. The Churari bund is situated about 2 miles to the west of the Oochain Byana road. It was constructed in 1860 A. D. in order to intercept the Banganga flood flowing west, but it was breached and abandoned when the Byana road was washed away. It has been temporarily repaired in 1897 A. D. at a cost of Rs. 1,500, but has since been breached. The length of the bank is 98 chains, width 5 ft., height 5 ft. The land shown as irrigated by the bund is watered naturally by the Banganga floods, though the breached banks help somewhat to distribute the water over the fields. It might be advantageous to restore the bund, but it would be necessary to construct an escape weir and sluices.

Total expenditure up to the end of 1902 A. D., Rs. 1,568.

9a. The Khemra bund is situated about 4 miles south of Bharatpur on the nullah which crosses the Agra road near Bichhaondi. The bund is an old one. In 1902 the gaps in it were closed and water was impounded in it.

## Bharatpur State.

## SEWAR SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-00 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
10		Areas expressed in bighas. (Note.—1 bigha = $\frac{1}{4}$ an acre.)						
	Brought forward	11,309	18,929	20,226	32,227	19,870	12,205	37,982
	Oochain-Biana road embankment.							
	<i>Kharif crops</i> ...	...	...	...	...	583	480	389
	<i>Rabi crops</i> ...	...	...	...	...	7,992	6,244	8,105
	<i>Total area cropped on land irrigated.</i> }	1,344	2,354	2,499	2,067	8,575	6,724	8,494
	Carried over (bighas.) ...	12,653	21,283	22,725	34,294	28,445	18,929	46,476

### **The Oochain Biana Road embankment.**

10. The distance from Oochain to the old river bed at Panna is about 6 miles. The road embankment has been restored as far as Nekpur 4 miles south of Oochain, the remainder of the road north of the Banganga River not being embanked. The main flow of the river now impinges on the road at Nekpur. Between Nekpur and Oochain 5 flood regulators have been constructed, 3 of them 100 feet waterway and 2 of 50 feet waterway. The regulators are provided with causeways and footbridges for traffic, and they are used to hold up floods to feed the Oochain canal or release them as required.

Total expenditure up to the end of 1902 A. D., Rs. 9,012.



## Bharatpur State.

## SEWAR SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas (Note.—1 bigha = $\frac{2}{3}$ an acre.)						
	Brought forward	12,653	12,283	22,725	34,294	28,445	18,929	46,476
11	Oochain canal with the Oochain Sewart road embankment, including minor cross dams.							
	<i>Kharif crops</i> ...	...	...	...	...	640	527	562
	<i>Rabi crops</i> ...	...	...	...	...	4,490	2,831	6,370
	<i>Total area cropped on land irrigated.</i> }	6,638	7,229	7,261	4,297	5,130	3,358	6,932
	Carried over ... (bighas).	19,291	28,512	29,986	38,591	33,575	22,287	53,408

### The Oochain Canal.

11. Length 72 chains, bed-width in 1895 20 ft., in 1900 50 ft. provided with two masonry bridges and a fall. Sesar Oochain road embankment. Length 6 miles, formation width 30 ft. The road is metalled. There are 12 sluices for irrigation under the road, and a series of cross bands to spread the water out in pockets against the road embankment.

The Oochain canal system is fed by the floods of the Banganga river, a torrential stream rising in Jaipur territory, the catchment area of which is about 1,932 sq. miles. There are generally two or three heavy floods in the year, but except during the floods, which last for a few days only, there is only a small stream during the rainy season, and for the rest of the year the river is dry. The old bed of the river is silted up below Panna and the river channel has followed the direction of the Biana Oochain road as far as Oochain, having crossed and breached the road at places, thus discharging a portion of the floods in an easterly direction parallel to the river flow, but a portion of the flood is guided in a northerly direction as far as Oochain by means of the road embankment which has been gradually restored for that purpose.

Flood regulators have been constructed crossing the road in order to let heavy flood pass without breaching the bank. At Oochain the floods are confined naturally by a low sandy ridge running from east to west, but this ridge has been cut through by the Oochain canal thus allowing the flood water of the Banganga river to run north from Oochain towards Sesar according to the principal fall of the country. Previously to the construction of the canal the Banganga floods never reached the land to the north of Oochain. The canal was first made 20 ft. wide in 1896 A. D., and having been found very successful it has been gradually enlarged to 50 ft. bed-width. The cutting is only about a mile long; the discharge of the canal is trained along the road from Oochain to Sesar, the road embankment having been specially raised and strengthened for the purpose. There is a series of some twelve sluices under the road which let the water flow to irrigate the land to

the west of the road, and there is a system of cross bunds to keep up the level of the water in front of the sluices. There is also a system of subsidiary bunds which form small reservoirs or pockets which are filled from the sluices under the road whenever there is a sufficient supply. The land which is thus saturated becomes sweetened, and after the draining off or the drying up of the water it is ploughed and sown in October for the rabi crop, there being no need for subsequent irrigation. The soil retains the moisture at such depth as to render it available for the nourishment of the growing plants, and the land which is naturally arid with a brackish substratum becomes highly fertile in consequence of the freshening influence of the inundation. This is the principle of irrigation from the Banganga River in the State. The fertility however is greatly assisted by good winter rains; if these fail the crops are short.

At Sesar the road is crossed by a heavy embankment constructed in 1897 to receive and distribute the final portion of the Banganga flood brought down by the Oochain canal. The bank connects the Ajan bund with the Sesar bund which extends for  $3\frac{1}{2}$  miles in a bend to the north of Sesar, thus protecting and commanding all the land in the vicinity. The following are the component parts of the system shown separately, from the Byana-Oochain road which forms the training bank at the head of the canal, to the Sesar bund which receives the final portion of the discharge, including also in detail the subsidiary bunds which hold up the water over the fields at suitable places, and help to distribute it.

Total expenditure up to the end of 1902 A. D., Rs. 46,048.

1. Oochain Bayana road embankment (including regulators and head works.)
2. Oochain canal and masonry works.
3. Oochain Sesar road embankment and sluices.

#### SUBSIDIARY BUNDS AND CHANNELS,

4. Par and Bagdhari channel.
5. Kharka bund and Barkoli channel.
6. Kharera bund,
7. Fatehpur bund.
8. Bhot bund.
9. Sukhawli bund.
10. Sheorana bund,
11. Sesar bund,
12. Murwara bund,



## Bharatpur State.

## SEWAH SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-00 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{1}{2}$ an acre.)						
	Brought forward.	19,291	28,512	22,986	38,591	33,575	22,287	53,408
13	Par Bagdhari channel.							
	<i>Kharif crops</i> ...	...	...	...	...	124	187	121
	<i>Rabi crops</i> ...	...	...	...	...	869	1,079	1,598
	<i>Total area cropped on land irrigated.</i> }	...	600	1,093	482	993	1,266	1,719
14 { 15 {	Kharka bund and Barkoli channel.							
	<i>Kharif crops</i> ...	...	...	...	...	127	...	...
	<i>Rabi crops</i> ...	...	...	...	...	763	...	1,010
	<i>Total area cropped on land irrigated.</i> }	...	1,653	983	565	890	...	1,010
16	Khamera bund—							
	<i>Kharif crops</i> ...	...	...	...	...	932	...	44
	<i>Rabi crops</i> ...	...	...	...	...	1,046	...	800
	<i>Total area cropped on land irrigated.</i> }	...	1,276	1,100	503	1,277	...	844
	Carried over (bighas.) ...	19,291	32,041	33,162	40,141	36,735	23,553	56,981

13. Par and Bagdhari irrigation channel bed-width 10 ft., length 85 chains; fed by the Oochain canal.

Total expenditure incurred up to the end of 1902 A. D., Rs. 951.

14, 15. Kharka bund and Barkoli channel, a continuation of the Churari bund constructed in 1899. The channel is 60 chains long, bed-width 5 ft., and the bund fed by it is 40 chains long, 4 ft. wide at top and 5 ft. high with one 4 ft. sluice. The bund can be fed from the Oochain canal.

Total expenditure up to the end of 1902 A. D., on the bund and channel being Rs. 4,051.

16. Kharera bund constructed in 1897, length 28 chains, width 4 ft., height 6 ft., having one sluice; fed by the Oochain canal.

Total expenditure up to the end of 1902 A. D., Rs. 713.

## Bharatpur State.

## SEWAR SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note—1 bigha = $\frac{1}{8}$ an acre).						
	Brought forward	19,291	32,041	33,162	40,141	36,735	23,553	56,981
17	Fatehpur bund—							
	<i>Khariif crops</i> ...	...	...	...	...	172	...	270
	<i>Rabi crops</i> ...	...	...	...	...	1,966	...	1,363
	<i>Total area cropped on land irrigated.</i> }	...	1,542	1,369	562	2,138	...	1,633
18	Bhot bund—							
	<i>Khariif crops</i> ...	..	...	...	...	198	...	300
	<i>Rabi crops</i> ...	...	...	...	...	1,329	...	2,726
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	2,527	...	3,027
19	Sukhawali bund—							
	<i>Khariif crops</i> ...	...	...	...	...	291	...	...
	<i>Rabi crops</i> ...	...	...	...	...	1,201	...	722
	<i>Total area cropped on land irrigated.</i> }	...	908	619	844	1,492	88	722
20	Sheorana bund—							
	<i>Khariif crops</i> ...	...	...	...	...	78	13	5
	<i>Rabi crops</i> ...	...	...	...	...	1,514	337	1,540
	<i>Total area cropped on land irrigated.</i> }	...	1,632	1,852	1,617	1,592	350	1,545
	Carried over (bighas)	19,291	36,123	37,002	43,164	44,484	23,991	63,908

17. Fatehpur bund constructed in 1897, length 31 chains, width 4 ft., height 6 ft., with one 3 ft. sluice ; fed by the Oochain canal.

Expenditure up to the end of 1902 A. D., Rs. 1,891.

18. Bhot bund constructed in 1900 A. D., length 42 chains, width 4 ft., height 7 ft., capacity about 1,000 bighas. Fed by the Oochain canal.

Expenditure up to the end of 1902 A. D., Rs. 1,439.

19. The Sukhawli bund was constructed in 1897 A. D., length 41 chains, width 4 ft., height 7 ft., with one sluice 2 ft. Fed by the Oochain canal.

Expenditure up to the end of 1902 A. D., Rs. 1,107.

20. The Sheorana bund is an old bund improved in 1897, length 56 chains, width 4 ft., height 6 ft., with one sluice 4 ft. The rent of land in this bund has increased from 2 as. to Rs. 3 per bigha. Fed by Oochain canal.

Expenditure up to the end of 1902 A. D., Rs. 559.



## Bharatpur State.

## SEWAR SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note—1 bigha = $\frac{1}{2}$ an acre).						
21	Brought forward	19,291	36,123	37,002	43,164	44,484	23,991	63,908
	Sewar bund—							
	<i>Kharif crops</i> ...	...	...	...	...	300	154	328
	<i>Rabi crops</i> ...	...	...	...	...	2,911	2,085	3,715
	<i>Total area cropped on land irrigated.</i> }	...	4,007	3,300	2,367	3,211	2,239	4,043
22	Anah bund—							
	<i>Kharif crops</i> ...	...	...	...	...	82	...	7
	<i>Rabi crops</i> ...	...	...	...	...	...	...	215
	<i>Total area cropped on land irrigated.</i> }	...	208	68	145	82	...	222
23	Murwara bund—							
	<i>Kharif crops</i> ...	...	...	...	...	46	...	754
	<i>Rabi crops</i> ...	...	...	...	...	481	...	2,186
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	527	87	2,940
24	Nekpur bund—							
	<i>Kharif crops</i> ...	...	...	...	...	744	209	30
	<i>Rabi crops</i> ...	...	...	...	...	2,872	558	1,149
	<i>Total area cropped on land irrigated.</i> }	...	663	306	1,674	3,616	767	1,179
	Carried over (bighas) ...	19,291	41,001	40,676	47,350	51,920	27,084	72,292

21. Sewar bund. Part of the bund is an old work, restored and improved, and part is a new extension connecting it with the Ajan bund. Total length  $3\frac{1}{2}$  miles, top-width 15 ft., height 8 ft., the land inside the bund is crossed by several roads, which divide it into compartments. The rent of the land has gone up from 8 annas to as much as Rs. 4 per bigha in consequence of the new irrigation.

The bund is fed by the Oochain canal.

Total expenditure incurred up to the end of 1902 A. D., Rs. 10,813.

22. The Anah bund is an old one. It is now fed from the Sewar bund, length 28 chains, width 4 ft., height 6 ft., with one sluice.

Expenditure on repairs up to date, Rs. 117.

23. The Murwara bund is an extension of the Sewar bund. Constructed in 1900 A. D. Length 80 chains, breadth 4 ft., height 6 ft. There is one sluice 4 feet wide. Cost of work done by the State P. W. D., Rs. 3,811.

24. The Nekpur bund is about a mile west of the Oochain Byana Road, extending from Nagla Kalyan to near Oochain. It is an old bund constructed in the time of Maharaja Balwant Singh, afterwards breached and abandoned. It was repaired by the State P. W. D. at a cost of Rs. 6,000. The object of the bund is to divert the Banganga floods northwards. The bund has been restored and strengthened at an additional cost of Rs. 8,000. Length of bund  $3\frac{1}{2}$  miles, width 8 feet, height 8 feet. An escape weir and 3 new sluices have been recently built.

Total cost up to 1902 A. D., Rs. 13,993.

## Bharatpur State.

## SEWAR SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-00 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)					
	Brought forward.	19,291	41,001	40,676	47,350	51,920	27,084	72,292
25	Kundher channel.							
	<i>Kharif crops</i> ...		(Included in Nekpur bund.)					
	<i>Rabi crops</i> ...							
	Total area cropped on land irrigated. }	...	...	...	...	...	...	...
26	Pinghora channel.							
	<i>Kharif crops</i> ...	...	...	...	...	276	251	14
	<i>Rabi crops</i> ...	...	...	...	...	471	45	80
	Total area cropped on land irrigated. }	...	...	1,152	562	747	296	94
27 { 28 {	Alipur bund (and channel.)							
	<i>Kharif crops</i> ...	...	...	...	...	104	92	...
	<i>Rabi crops</i> ...	...	...	...	...	891	626	...
	Total area cropped on land irrigated. }	...	...	...	327	995	712	...
29	Bichhaondi bund							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	...
	Total area cropped on land irrigated. }	...	...	...	...	...	...	...
	Carried over (bighas)	19,291	41,001	41,828	48,239	51,662	28,092	72,383

25. The Kundher channel from the Banganga river has been recently constructed to feed the Nekpur bund. Length  $1\frac{1}{2}$  miles, bed-width 30 ft. Cost up to 1902 A. D., Rs. 308.

26. The Pinghora channel was constructed in 1897. It takes out from the Barkhera spill channel of the Banganga river, bed-width 10 ft., length 57 chains, cost Rs. 915. The land cultivated was formerly waste.

27 & 28. The Alipur bund was constructed across the Barkhera spill depression of the Banganga river. The bund is 17 chains long, 15 ft. formation width, 10 ft. high, cost Rs. 1,500. The channel fed by it is 20 ft. wide, length 7 chains, cost Rs. 2,200.

Total expenditure on bund and channel up to the end of 1902 A. D., Rs. 4,585.

29. The Bichhaondi bund was constructed in 1899 across the same spill depression of the Banganga river, length 16 chains, width at top 12 ft., height 8 ft. Cost Rs. 1,000. No floods have yet been received in it.

Cost up to 1902 A. D., Rs. 1,230.

## Bharatpur State.

## SEWAR SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-00 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)						
	Brought forward.	19,291	41,001	41,828	48,239	53,662	28,092	72,386
30	Baseri bund—							
	<i>Khariif crops</i> ...							
	<i>Rabi crops</i> ...							
	Total area cropped on land irrigated. }	...	...	...	1,195	...	...	...
31	Shahna bund—							
	<i>Khariif crops</i> ...							
	<i>Rabi crops</i> ...							
	Total area cropped on land irrigated. }	...	...	...	...	...	...	...
32	Richholi bund—							
	<i>Khariif crops</i> ...	...	...	...	...	927	418	1,114
	<i>Rabi crops</i> ...	...	...	...	...	2,343	2,779	3,294
	Total area cropped on land irrigated. }	...	...	...	...	3,270	3,197	4,408
	Carried over (bighas.)	19,291	41,001	41,828	49,434	56,932	31,289	76,794

30. The Baseri bund was constructed in 1899 across the same spill depression. Length 25 chains, width 12 ft., height 8 ft.

Cost up to 1902 A. D., Rs. 1,039.

31. The Shahna bund was constructed in 1899 across the same spill depression. Length 18 chains, width 8 ft., height 8 ft. No flood yet received. Works 27 to 31 have hitherto received little or no supply owing to the river floods not have spilled in that direction lately as they used formerly to do.

Cost up to 1902 A. D., Rs. 507.

32. The Richholi bund is situated across the Jhil-ka-bara valley and some spill from the Banganga river enters the basin. The length of the bund is 36 chains, width 8 feet, height 10 feet. Restored by the State P. W. D. in 1900-01 A. D., at a cost of Rs. 5,587.

Contour area of land submerged within the bund about 1,800 bighas.  
Contents about 94 millions cubic feet.

## Bharatpur State.

## SEWAR SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{7}$ an acre.)					
	Brought forward	19,291	41,001	41,828	49,434	56,932	31,289	76,794
33	Helak bund—		Constructed in 1901 A. D.					
	<i>Kharif crops</i> ...	...	...	...	...	...	...	159
	<i>Rabi crops</i> ...	...	...	...	...	...	...	1,006
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	...	...	1,165
34	Bhutawali bund—		Constructed in 1902 A. D.					
	<i>Kharif crops</i> ...	...	...	...	...	...	...	50
	<i>Rabi crops</i> ...	...	...	...	...	...	...	434
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	...	...	484
	Carried over (bighas.) ...	19,291	41,001	41,828	49,434	56,932	31,289	78,443

33. The Helak bund is situated 3 miles west of Sewar near the Sewar-Helak road. It was constructed by the State P. W. D. in 1901 A. D., at a cost of Rs. 3,491. Length of the bund 80 chains, width 4 feet, height 7 feet. The bund was filled in 1902 A. D.

Contour area of the land submerged within the bund about 1,500 bighas. Contents about 42 million cubic feet.

34. The Bhutawali bund is situated in Tehsil Kumher, 6 miles west of Nadbai. Length of the bund is 68 chains, width 4 feet, height 8 feet. The reconstruction of this bund was completed in 1902 A. D. and it filled well in the rains of the same year. Cost Rs. 2,500.

Submerged contour within the bund about 500 bighas. Contents of the reservoir about 17 million cubic feet.



### Bharatpur State.

## SEWAR SUB-DIVISION.

*Statement of cultivated areas irrigated by bunds and channels.*

[illegible]

35. The Pichuna canal from the Gambhir river was constructed in 1902 A. D. Its length is 2 miles, bed-width 40 feet. The canal is taken out of the river near the village Seola on the left bank at a place where the river passes by an outlying rocky spur, the mouth of the canal being cut through the rock. A head regulator should be built in this cutting. In 1902 a heavy flood went down the canal and damaged the new earth-work which requires to be raised and strengthened. The canal should be extended to Pichuna in order to command a considerable area of waste land in that neighbourhood. By means of this canal a supply can be ensured every year to the Ajan bund as the Gambhir never fails to bring down at least one flood and the canal now tails into an old channel that leads into the basin of the bund.

Cost of the work done in 1902 A. D., Rs. 5,800.



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BARETA SUB-DIVISION.

(Parts of the Rupbas and Biana pergunnahs  
East of the Gambhir River.)

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## Bharatpur State.

## BARETA SUB-DIVISION.

Statement of cultivated areas irrigated by bunds and channels.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
	<i>Rainfall in inches measured at Bareta.</i>	...	20.69	20.89	20.55	20.07	11.03	25.04
	Areas expressed in bighas. (Note—1 bigha = $\frac{2}{3}$ an acre).							
36	Bareta bund ...	...	1,359	1,668	12,622	7,514	12,793	9,111
37	Paharpur bund ...	...	83	203	398	256	106	384
38	Bansi kaoha bund ...	...	39	141	72	72	...	259
39	Kherli bund ...	...	420	737	485	1,228	676	1,398
40	Ahlow „ ...	...	...	...	...	189	20	287
41	Mahulpur Chura bund ...	25	100	142	167	107	34	174
42	Gujar baroli lower bund ...	...	45	83	35	182	...	82
43	„ „ upper „ ...	...	...	56	82	38	...	117
44	Duharda bund ...	58	122	122	426	482	450	922
45	Dahna channel ...	...	40	...	326	336	527	1,380
46	Bokoli „ ...	...	...	...	3,402	2,136	2,973	3,328
47	Ghata „ ...	...	...	...	...	383	4,376	2,566
48	Nagla Jatwansi bund ...	...	42	30	...	70	54	206
49	Doomria bund ...	...	157	86	...	533	50	1,191
50	Khera-Rudawal bund ...	...	253	...	...	669	...	1,362
51	Tontpur bund ...	...	(restored in 1899-1900.)			30	...	75
52	Baseri „ ...	...	„	„	„	347	...	373
53	Pura Maloni bund ...	...	„	„	„	90	...	372
54	Maloni lower „ ...	...	„	„	„	300	...	394
55	„ upper „ ...	...	„	„	„	95	...	100
56	Neoharda bund ...	...	„	„	„	186	...	299
57	Samri bund ...	...	„	„	„	165	20	221
58	Jatwansi bund ...	...	„	„	„	101	...	319
59	Binowa „ ...	...	„	„	„	145	442	412
60	Mahulpur Baghwala bund ...	...	Restored.		...	56	5	80
	Carried over (bighas) ...	83	2,660	3,268	18,013	15,710	22,526	25,412

## Bharatpur State.

## BARETA SUB-DIVISION.

*Statement of cultivated areas irrigated by bunds and channels.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Areas expressed in bighas. (Note.—1 bigha= $\frac{2}{3}$ an acre.)					
	Brought forward	83	2,660	3,268	18,013	15,710	22,526	25,412
61	Sirron bund ...	...	...	...	...	84	18	165
62	Badleshwar bund	..	...	...	...	...	...	...
63	Churari bund ...	...	...	...	...	35	...	136
64	Gothra bund ...	(Constructed in 1900 A. D.)				28	10	76
65	Tarvijpur bund...			do.	do.	28	...	27
66	Kheriajat bund...	(Constructed in 1902 A. D.)				...	...	155
67	Samahad bund...			do.	do.			145
68	Jaisora bund ...			do.	do.			640
	Total } Bighas	83	2,660	3,268	18,013	15,883	22,554	26,756
	Sub-Dn. } Acres	33	1,064	1,307	7,205	6,353	9,022	10,706



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Details of Irrigation works in the Bareta Sub-Division.

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### Bharatpur State.

BARETA SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
36	Brought forward		Areas expressed in bighas. (Note.—1 bigha= $\frac{1}{8}$ an acre.)					
	Bareta bund—							
	<i>Khari</i> crops ...	...	...	...	...	3,178	4,366	686
	<i>Rabi</i> crops ...	...	...	...	...	4,336	8,427	8,425
	Total area cropped on land irrigated. }	...	1,359	1,668	12,622	7,514	12,793	9,111
	Carried over ...	...	1,359	1,668	12,622	7,514	12,793	9,111

36. The Bareta bund is situated across the Kakund nulla near the deserted village of Sooka Seela in the Bianna pergunna. The catchment area is 70 sq miles of rocky hills and ravines, the source of the stream being in Kerauli territory. The construction of the bund was commenced in 1866 A. D. by Captain Home, R. E., during the minority of the late Maharaja Jaswant Singh on whose accession the work was abandoned, less than half the work having then being done, and no attempt having been made to construct the portion of the dam across the bed of the stream. The work was recommenced according to a revised design by the State P. W. D. in 1896 A. D., and was completed in time to catch the flood of 1897, the subsidiary works consisting of an escape channel, distributary channels, etc., being constructed during the years 1896—1900. The bund is 38 chains long consisting of a masonry corewall from end to end protected by a heavy earthen bank at front and rear sides of the wall, the front slope being 4 to 1, rear slope 3 to 1, formation width of top of bank 10 ft. in, and 6 ft. in rear of the corewall. The front slope is pitched with stone. Maximum depth of water retained about 45 ft. in the bed of the nulla, water-spread at escape level nearly 4 sq. miles. Height of corewall 10 ft. above escape level, width of escape channel 200 ft. There are two masonry sluices furnished with shutters and valves at different levels. There are three distributary channels, bed-width of each 8 ft. at head, length now aggregating 15 miles without branches. The channels have been aligned through difficult country and are carried on heavy banks and aqueducts over ravines for the first mile, before debouching on even ground.

Bed of reservoir R. L. 635, lowest sluice level R. L. 650, weir level R. L. 680, H. F. L. 682'00, top of bank R. L. 690. In 1899 the reservoir was filled up to R. L. 670, in 1898 up to R. L. 675 and in 1899 up to R. L. 682, the escape channel running for one month continuously. The value of the crops raised in 1899-1900 is estimated to have exceeded the outlay on the bund.

About 5,000 acres were irrigated in 1901-1902 A. D., cost of the work done by the State P. W. D. up to October 1902 including channels and all subsidiary works Rs. 2,37,287. Scarcity relief labour was largely employed on the construction, the payment for it being included in the cost stated. The distributary system has been improved and extended in the years 1901 and 1902 A. D.

The contour areas and contents of the reservoir are as follows:—

**Bareta Bund.**

*Contour Areas and Contents.*

Level of contours above M. S. Level.	AREA OF WATER-SPREAD AT EACH CONTOUR.			DETAILS OF CONTENTS AT DIFFERENT CONTOURS IN MILLION CUBIC FEET.			Remarks.
	Sqr. miles.	Acres.	Bighas.	Measured or calculated area of each contour (in m. sqr. feet.)	Contents between successive contours (in m. c. feet.)	Contents below each contour (in m. c. feet.)	
1	2	3	4	5	6	7	8
R. L. 635	...	...	...	...	...	...	Bed of stream.
650	0.20	130	330	6	2	30	Lowest sluice level.
651	0.22	153	384	6½	6	36	
652	0.27	175	438	7½	7	43	
653	0.30	197	492	8½	8	51	
654	0.34	219	546	9½	9	60	
655	0.37	240	600	10½	10	70	Bed of duct No. 3.
656	0.45	281	720	12½	11	81	
657	0.52	340	840	14	13	94	
658	0.60	380	960	16	15	109	" " No. 1.
659	0.67	430	1,080	18½	17	126	
660	0.75	480	1,200	21	19	145	
661	0.86	550	1,380	23½	22	167	
662	0.97	620	1,507	26½	25	192	" " No. 2.
663	1.08	690	1,740	29½	28	220	
664	1.20	770	1,920	32½	31	251	
665	1.31	840	2,100	36½	34	285	
666	1.50	960	2,400	41½	38	323	
667	1.68	1,080	2,700	46½	43	366	
668	1.87	1,200	3,000	51½	48	414	
669	2.06	1,320	3,300	56½	54	468	
670	2.25	1,440	3,600	63	59	527	
671	2.40	1,540	3,840	66½	64	591	
672	2.55	1,630	4,080	70½	68	659	
673	2.70	1,730	4,320	74½	72	731	
674	2.85	1,820	4,560	79½	77	808	

## Bareta Bund.

*Contour Areas and Contents.*—Concl'd.

Level of contours above M. S. Level.	AREA OF WATER-SPREAD AT EACH CONTOUR.			DETAILS OF CONTENTS AT DIFFERENT CONTOURS IN MILLION CUBIC FEET.			Remarks.
	Sq. miles.	Acres.	Bighas.	Measured or calculated area of each contour (in m. sq. feet.)	Contents between successive contours (in m. c. feet.)	Contents below each contour (in m. c. feet.)	
1	2	3	4	5	6	7	8
R. L. 675	3.00	1,920	4,800	84	81	889	
676	3.15	2,020	5,050	88	86	975	
677	3.31	2,120	5,300	92	90	1,065	
778	3.47	2,220	5,550	96½	94	1,159	
679	3.62	2,320	6,800	100	98	1,257	
680	3.78	2,420	6,050	105	102	1,359	Escape level.
681	4.17	2,670	6,675	115¾	110	1,469	
682	4.56	2,920	7,300	127½	121	1,590	H. W. L. in 1899.

## Bharatpur State.

## BARETA SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
Areas expressed in bighas (Note.—1 bigha = $\frac{2}{3}$ an acre.)								
37	Brought forward	...	1,359	1,668	12,622	7,514	12,793	9,111
	Paharpur bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	36
	<i>Rabi crops</i> ...	...	...	...	...	...	...	348
	<i>Total area cropped on land irrigated.</i> }	...	83	203	396	256	106	384
38	Bansi kacha bund							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	16
	<i>Rabi crops</i> ...	...	...	...	...	...	...	243
	<i>Total area cropped on land irrigated.</i> }	...	39	141	72	72	...	259
39	Kherli bund—							
	<i>Kharif crops</i> ...	...	...	...	...	117	257	28
	<i>Rabi crops</i> ...	...	...	...	...	1,111	419	1,370
	<i>Total area cropped on land irrigated.</i> }	...	420	737	485	1,228	676	1,398
	Carried over ... (bighas).	...	1,901	2,749	13,575	9,070	13,575	11,152

37. The Paharpur bund is situated near the Paharpur village, catchment area 1 sq. mile. Constructed in 1849 A. D., improved by the State P. W. D. in 1896-97, a front slope and an escape weir being added at a cost of Rs. 900. The length of the bund is 18 chains, height 14 ft., width at top 20 ft. Maximum depth of water retained 10 ft., water spread inside the bund 126 bighas. Contents of reservoir about 7 million cubic feet. 250 bighas irrigated outside through channels in 1902-03 A. D.

There is a masonry face wall, and a sluice for irrigation in the rear. The bund is amply strong enough and fills well.

Expenditure up to the end of October 1902 A. D., Rs. 1,191.

38. The Bansi kacha bund is situated 2 miles north from Paharpur. Catchment 2 sq. miles, constructed in 1849 A. D., afterwards breached and abandoned. It was restored by the State P. W. D. at a cost of Rs. 346 in 1897 A. D. The bank requires raising 1 ft. or more. There is an escape passage 200 ft. wide.

Total expenditure up to the end of October 1902 A. D., Rs. 612.

Contour area of land submerged within the bund about 200 bighas.

Contents of reservoir about 9 million cubic feet.

39. The Kherli bund is situated near Paharpur to the east across the Khar nulla. Catchment 8 sq. miles. The bund is practically a new one. There was an old breached bund near the site which has been partly utilized in the construction, but there was no dam across the stream till 1897 A. D., when a wall was built across the stream. The bund is now 56 chains long, top-width 8 ft., top of bank 5 ft. above escape level, greatest depth of water retained 12 ft. There are 3 sluices for irrigation in the rear. There is an escape weir 200 ft. wide. The bund has an ample supply and fills well. It is used to feed a chain of subsidiary bunds in rear. This bund is highly remunerative and deserves careful maintenance. 800 bighas irrigated outside through sluices in 1902-03 A. D.

Contour area of land submerged within the bund at escape level about 460 bighas. Contents of reservoir about 29 million cubic feet.

Expenditure up to the end of October 1902 A. D., Rs. 10,072.

## Bharatpur State.

## BARETA SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Areas expressed in bighas. Note—1 bigha = $\frac{2}{3}$ an acre.)					
40	Brought forward..	...	1,901	2,749	13,575	9,070	13,576	11,152
	Ahlow bund—							
	<i>Kharif crops</i> ...	(Restored in		1899-	1900.)	13	...	17
	<i>Rabi crops</i> ...	...	...	...	...	176	...	270
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	189	20	287
41								
	Mahalpur Chura bund.							
	<i>Kharif crops</i> ...	...	...	...	...	5	...	...
	<i>Rabi crops</i> ...	...	...	...	...	102	...	174
	<i>Total area crop- ped on land irrigated.</i> }	25	100	142	167	107	34	174
	Carried over ... (bighas.)	25	2,001	2,891	13,742	9,366	13,629	11,613

40. The Ahlow bund is a continuation of the Kherli bund, local catchment  $1\frac{1}{2}$  sq. miles. It is intended to feed it from the Kherli bund. It was constructed by Maharaja Balwant Singh and afterwards abandoned in a breached condition. It has been restored and improved by the State P. W. D. in 1899-1900 A. D. at a cost of Rs. 2,500. The length of the bund is now 57 chains, height 10 ft., width at top 7 ft.

Contour area submerged inside the bund about 200 bighas.  
Contents of reservoir about 7 million cubic feet.

Expenditure up to the end of 1903 A. D., Rs. 3,842

41. The Mahalpur Chura bund is situated 2 miles west from Paharpur. Catchment area 2 sq. miles. Originally constructed by Maharaja Balwant Singh afterwards breached and abandoned, and restored and improved by the State P. W. D. in 1896 A. D. and since then maintained in good order. Length of dam 30 chains now, width 6 ft., height 12 ft. There is an escape passage 70 ft. deep at the north flank. It has one sluice, and it fills well. 100 bighas irrigated outside through sluices in 1902-03 A. D.

Contour area of land submerged within the bund about 150 bighas.  
Contents of reservoir about 9 million cubic feet.

Total expenditure up to the end of 1903 A. D., Rs. 4,158



## Bharatpur State.

## BARETA SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A.D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha= $\frac{2}{3}$ an acre.)						
	Brought forward	25	2,001	2,891	13,742	9,366	13,629	11,613
42	Gujar Baroli lower bund—							
	<i>Kharif crops</i> ...	...	...	...	..	...	...	51
	<i>Rabi crops</i> ...	...	...	...	...	..	...	31
	<i>Total area cropped on land irrigated.</i> }	...	45	83	35	182	...	82
43	Gujar Baroli upper bund—							
	<i>Kharif crops</i> ...	...	...	...	...	2	...	39
	<i>Rabi crops</i> ...	...	...	...	...	36	...	78
	<i>Total area cropped on land irrigated.</i> }	...	...	56	82	38	...	117
44	Duharda bund—							
	<i>Kharif crops</i> ...	...	...	...	...	7	...	...
	<i>Rabi crops</i> ...	...	...	...	...	475	...	922
	<i>Total area cropped on land irrigated.</i> }	58	122	122	426	482	450	922
	Carried over ... (bighas)	83	2,168	3,152	14,285	10,068	14,079	12,734

42. The Gujar Baroli lower bund is situated 3 miles north from Badleshwar, catchment area 1 sq. mile, originally constructed in 1850 A. D., afterwards breached and abandoned. It was restored by the State P. W. D. in 1897. The length of bund is 30 chains, height 10 ft., width at top 6 ft., top of bank 4 ft. above escape level, inside slope 2 to 1, outside 1 to 1, depth of water retained 6 ft. There is one sluice for rear irrigation. The bund requires an escape weir 100 ft. long. A masonry dam has been built at Badleshwar in 1900 to divert a stream into its catchment, as the supply is generally short.

Contour area of land submerged within the bund about 100 bighas.  
Contents of reservoir about 8 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,170.

43. The Goojar Baroli upper bund is situated 2 miles north from Badleshwar, catchment area 1 sq. mile originally constructed by Maharaja Balwant Singh in 1850 A. D., afterwards breached and abandoned. It was restored by the State P. W. D. in 1897 at a cost of Rs. 450. Length of bund 10 chains, height 9 ft., width at top 6 ft., top of bank 4 ft. above escape level, inside slope 2 to 1, outside 1 to 1, depth of water retained 5 ft.

Contour area of land submerged within the bund about 60 bighas.  
Contents of the reservoir about 3 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,989

44. The Duharda bund is situated 2 miles west from Rupbas. It is fed by the Bokoli channel from Gambhir river. Constructed in the time of Maharaja Balwant Singh in 1849 A. D., and breached in the same year, it was restored and improved by the State P. W. D. in 1897 A. D. at a cost of Rs. 1,400. The length of bund is now 58 chains, height 9 ft., width at top 6 ft., top of the bank 4 ft. above escape level, inside slope 2 to 1, outside 1 to 1, depth of water retained 5 ft. The bund requires an escape weir 200 ft. wide, there being only an escape passage over natural soil at present.

In 1902 the bund was raised and improved. A flood regulator being added, total expenditure up to the end of 1902 A. D., Rs. 4,664.

Contour area submerged within the bund about 450 bighas. Contents of the reservoir about 22 million cubic feet.

## Bharatpur State.

## BARETA SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note—1 bigha = $\frac{2}{3}$ an acre.)						
45	Brought forward..	83	2,168	3,152	14,285	10,068	14,079	12,734
	Dahna channel—							
	<i>Kharif crops</i> ...	...	...	...	...	13	14	179
	<i>Rabi crops</i> ...	...	...	...	...	319	513	1,201
	Total area cropped on land irrigated. }	...	40	...	326	336	527	1,380
46	Bokoli channel—							
	<i>Kharif crops</i> ...	...	...	...	...	606	402	375
	<i>Rabi crops</i> ...	...	...	...	...	1,530	2,571	2,953
	Total area cropped on land irrigated. }	...	...	...	3,402	2,136	2,973	3,328
47	Ghata channel—							
	<i>Kharif crops</i> ...	...	...	...	...	...	972	249
	<i>Rabi crops</i> ...	...	...	...	...	...	3,404	2,317
	Total area cropped on land irrigated. }	...	...	...	...	383	4,376	2,566
	Carried over (bighas).	83	2,201	3,152	18,013	12,923	21,955	20,008

45. The Dahna channel is situated 5 miles north from Rudawal, supplied by the high floods of the Gambhir river. It was commenced by Maharaja Balwant Singh but remained incomplete. Recommenced and improved by the State P. W. D. in 1897 A. D. at a cost of Rs. 9,000. The length of channel is 83 chains, bed-width 15 ft. in rock cutting.

The channel serves to feed the Binowa bund. It would be comparatively costly to widen this channel owing to the deep rock cutting required.

Total expenditure up to end of 1902 A. D., Rs. 13,825.

46. The Bokoli channel is situated 5 miles west from Rupbas, supplied from floods of Gambhir river, constructed by Maharaja Balwant Singh in 1844 A. D., but silted up in 1858 A. D. Afterwards restored and widened by the State P. W. D. in 1897—1900 at a cost of Rs. 1,500. The length of the channel is 45 chains, bed-width 30 ft.; there is a masonry regulator.

Total expenditure up to end of 1902 A. D., Rs. 3,293.

The Ghata Bokoli channel is situated between the villages Ghata and Bokoli on the south bank of the Gambhir river. Constructed by the State P. W. D. in 1900 A. D. The channel is now 50 feet bed-width. The head of it is located in a cutting through a rocky spur and a pukka regulator has been built there (in 1902 A. D.) to close it when flooding is not required. It is important to preserve the flood of the Gambhir in its old channel past Ghata, Bokoli and Khanwa, otherwise the cuts taken out of the right bank will be dry.

Total expenditure up to the end of 1902 A. D., Rs. 683.

## Bharatpur State.

## BARETA SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)						
48	Brought forward..	83	2,208	3,152	1,803	12,923	21,955	20,008
	Nagla Jatwansi bund—							
	<i>Kharif crops</i> ...	...	...	...	...	10	...	14
	<i>Rabi crops</i> ...	...	...	...	...	60	...	192
	<i>Total area crop- ped on land irrigated.</i> }	...	42	30	...	70	54	206
49	Doomria bund—							
	<i>Kharif crops</i> ...	...	...	...	...	162	...	432
	<i>Rabi crops</i> ...	...	...	...	...	371	...	849
	<i>Total area crop- ped on land irrigated.</i> }	...	157	86	...	533	50	1,191
50	Khera Rudawal bund—							
	<i>Kharif crops</i> ...	...	...	...	...	188	...	544
	<i>Rabi crops</i> ...	...	...	...	...	481	...	818
	<i>Total area crop- ped on land irrigated.</i> }	...	253	...	...	669	...	1,362
	Carried over ... (bighas.)	83	2,660	3,268	18,013	14,195	22,059	22,767

48. The Nagla Jatwansi bund is situated 3 miles north from Paharpur. Catchment area  $1\frac{1}{4}$  sq. miles, constructed by Maharaja Balwant Singh in 1850 A. D., afterwards breached and abandoned. It was restored by the State P. W. D. in 1897 at a cost of Rs. 1,000. The length is now 61 chains, height 10 ft., width at top 6 ft., top of bank 4 ft. above escape level, slope 2 to 1 and 1 to 1. Depth of water retained 6 ft. The bund was breached in June 1897 but has since been repaired and is now strong enough to be filled.

Contour area of land submerged within the bund about 200 bighas. Contents of the reservoir about 8 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 7,317 including Jatwansi bund.

49. The Doomria bund is situated near Tuleka-Nagla 4 miles east from Bareta bund. Catchment area 6 sq. miles, constructed by Maharaja Balwant Singh in 1844 A. D., but afterwards breached and abandoned. It was restored by the State P. W. D. at a cost of Rs. 4,000. The length of the bund is now 62 chains, height 12 ft., width at top 7 ft., top of bank 5 ft. above the escape level, inside slope 3 to 1, outside  $1\frac{1}{2}$  to  $\frac{1}{2}$ . Depth of water retained 7 ft. On the 26th June 1899 the bund was breached owing to the undermining of the escape weir which was built on sandy soil, but it has since been repaired and is now strong enough to be filled. A new escape channel has been provided to save the bank in heavy floods. 500 bighas irrigated outside through sluices in 1902-03 A. D.

Contour area submerged within the bund about 456 bighas. Contents of the reservoir about 26 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 4,156

50. The Khera Rudawal bund is situated near Rudawal. Catchment area 6 sq. miles, constructed by Maharaja Balwant Singh in 1850 A. D. breached and abandoned, but afterwards restored by the State P. W. D. in 1897—1900 A. D. at a cost of Rs. 2,700. The length of the bund is now 110 chains, height 12 ft., width at top 8 ft., top of bank 5 ft. above the escape level. Inside slope 3 to 1, outside 1 to 1. Greatest depth of water retained 7 ft. There are 4 sluices for rear irrigation. The bund was breached on the 26th June 1899 A. D., but has since been repaired and is now amply strong enough to be filled. A masonry escape weir 400 ft. wide has been added to save the bank in heavy floods.

Contour area of land submerged within the bund about 450 bighas. Contents of the reservoir about 26 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 4,876.

## Bharatpur State.

## BARETA SUB-DIVISION.

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note—1 bigha = $\frac{2}{3}$ an acre.)						
	Brought forward	83	2,660	3,268	18,013	14,195	22,059	22,767
51	Tontpur bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	19
	<i>Rabi crops</i> ...	...	...	...	...	...	...	56
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	30	...	75
52	Baseri bund—							
	<i>Kharif crops</i> ...	...	...	...	...	5	...	33
	<i>Rabi crops</i> ...	...	...	...	...	342	...	340
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	347	...	373
53	Pura Maloni bund.							
	<i>Kharif crops</i> ..	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	372
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	90	...	372
	Carried over (bighas.) ...	83	2,660	3,268	18,013	14,662	22,059	23,587

51. The Tontpur bund is situated 5 miles east from Paharpur. Catchment area 1 sq. mile, constructed in 1844 A. D., afterwards breached and abandoned, restored by the State P. W. D. in 1900 A. D. The length of the bund is now 47 chains, height 10 ft., width at top 6 ft., top of bank 4 ft. above the escape level, inside slope 3 to 1, outside 1 to 1. Masonry escape weir 100 ft. wide. Greatest depth of water retained 6 feet.

The bund can be fed from the Kherli bund.

Contour area submerged within the bund about 200 bighas. Contents of the reservoir about 9 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 3300.

52. The Baseri bund is situated 4 miles from Paharpur. Catchment area 1 sq. mile, constructed in 1844 A. D., afterwards breached and abandoned but was restored by the State P. W. D. at a cost of Rs. 3,500. There is an escape weir 200 ft. wide at the east end of the bund. The length of the bund is now 80 chains, height 12 ft., width at top 7 ft., top of bank 5 ft. above the escape level, inside slope 3 to 1, outside 1 to 1.

Contour area submerged within the bund about 300 bighas. Contents of the reservoir about 29 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 4,526.

53. Pura Maloni bund is situated 6 miles east from Paharpur. Catchment area 1 sq. mile, constructed in 1844 A. D., afterwards breached and abandoned. It was restored by the State P. W. D. in 1900 at a cost of Rs. 2,800, a core wall has been built at a nallah and an escape weir 200 ft. wide. The length of the bund is now 66 chains, height 12 ft., width at top 7 ft., top of the bank 5 ft. above the escape level, inside slope 3 to 1, outside 1 to 1. Greatest depth of water to be retained 7 ft. The bund can be supplied from the Kherli weir.

Contour area of land submerged within the bund about 400 bighas. Contents of the reservoir about 31 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 3,647.



## Bharatpur State.

## BARETA SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A.D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
Areas expressed in bighas. (Note.— 1 bigha= $\frac{1}{2}$ an acre.)								
54	Brought forward	83	2,660	3,268	18,013	14,662	22,059	23,587
	Maloni lower bund—							
	<i>Kharif crops</i> ...	...	...	...	..	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	..	...	394
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	300	...	394
55	Maloni upper bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	9
	<i>Rabi crops</i> ...	...	...	...	...	...	...	91
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	95	...	100
56	Neoharda bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	4
	<i>Rabi crops</i> ...	...	...	...	...	..	...	295
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	186	...	299
	Carried over (bighas)	83	2,660	3,268	18,013	15,243	22,059	24,380

54. Maloni lower bund is situated 5 miles south from Rupbas. Catchment area 3 sq. miles, constructed in 1866 A. D., afterwards breached and abandoned. It was restored by the State P. W. D. in 1900. The length of the bund is now 90 chains, height 12 ft., width at top 6 ft., top of the bank 5 ft. above the escape level, inside slope 3 to 1, outside 1 to 1. Greatest depth of water to be retained 7 ft., escape passage 200 ft. wide.

Contour area of land submerged within the bund about 600 bighas. Contents of the reservoir about 31 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,090.

55. Maloni upper bund is situated north of Maloni village. Catchment area 1 sq. mile, constructed in 1844 A. D., breached and abandoned. It was restored by the State P. W. D. in 1900 A. D. at a cost of Rs. 1,800. An escape weir 100 ft. wide has been built. The length of the bund is now 35 chains, height 10 ft., width at top of the bank 4 ft. above the escape level, inside slope 3 to 1, outside 1 to 1. Greatest depth of water to be retained 6 ft.

Contour area of land submerged within the bund about 300 bighas. Contents of the reservoir about 3 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 3,647.

56. Neoharda bund is situated 8 miles east from Paharpur. Catchment area 2 sq. miles, constructed in 1844 A. D., afterwards breached and abandoned, restored by the State P. W. D. in 1900 A. D. at a cost of Rs. 1,800. A masonry escape weir has been built 200 ft. wide. The length of the bund is now 70 chains, height 10 ft., width at top 6 ft., top of the bank 4 ft. above the escape level, inside slope 3 to 1, outside 1 to 1. Greatest depth of water to be retained 6 feet.

Contour area of land submerged within the bund about 400 bighas. Contents of the reservoir about 27 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,923.

## Bharatpur State.

## BARETA SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note—1 bigha = $\frac{2}{3}$ an acre.)						
57	Brought forward..	83	2,660	3,268	18,013	15,243	22,059	24,380
	Samri bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	50
	<i>Rabi crops</i> ...	...	...	...	...	...	...	171
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	165	20	221
58	Jatwansi bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	74
	<i>Rabi crops</i> ...	...	...	...	...	...	...	245
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	101	...	319
59	Binowa bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	24	11
	<i>Rabi crops</i> ...	...	...	...	...	...	418	401
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	145	442	412
	Carried over ... (bighas).	83	2,660	3,268	18,013	15,654	22,521	25,332

57. The Samri bund is situated 10 miles east from Paharpur. Catchment area 2 sq. miles, constructed in 1844 A. D., afterwards breached and abandoned, restored by the State P. W. D. in 1900 A. D. at a cost of Rs. 1,800. 2 escapes and one core wall have been built in the large breach. The length of the bund is now 50 chains, height 10 ft., width at top above the escape level 4 ft. Greatest depth is 6 feet.

Contour area of land submerged within the bund about 250 bighas. Contents of the reservoir about 11 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 2,448.

58. Jatwansi bund is situated 3 miles north from Paharpur. Catchment area  $1\frac{1}{2}$  miles, constructed in 1844 A. D., afterwards breached and abandoned, restored by the State P. W. D. in 1900 A. D. at a cost of Rs. 3,000. An escape weir 200 ft. wide, and a core wall across the Khar nalla have been built. The length of the bund is now 60 chains, height 10 ft., width at top 6 ft., top of the bund 4 ft. above the escape level. Greatest depth of water to be retained 6 feet.

Contour area of land submerged within the bund about 400 bighas. Contents of the reservoir about 20 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 3,500.

59. The Binowa bund is situated 5 miles north from Paharpur. Catchment area 2 sq. miles, constructed in 1850 A. D. Afterwards breached and abandoned. It was restored by the State P. W. D. in 1900 A. D. at a cost of Rs. 4,000. One sluice has been built for rear irrigation and an escape 200 ft. wide at the west end of the bund. The length of the bund is now 100 chains, height 14 ft., width at top 8 ft., top of the bank 5 ft. above the escape level, inside slope 3 to 1, outside 1 to 1. Greatest depth of water to be retained 9 feet.

The bund can be filled from the Gambhir river by the Dahna channel through a feeder channel 12 ft. wide.

Contour area of land submerged within the bund at escape level about 800 bighas. Contents of the reservoir about 58 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 4,774.

## Bharatpur State.

## BARETA SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)					
60	Brought forward..	83	2,660	3,268	18,013	15,654	22,521	25,332
	Mahalpur Bagh-wala bund—							
	<i>Kharif crops</i> ...	...	...	...	...	18	...	...
	<i>Rabi crops</i> ...	...	...	...	...	38	...	80
	Total area crop- ped on land irrigated. }	...	...	...	...	56	5	80
61	Sirround bund—							
	<i>Kharif crops</i> ...	...	...	...	...	2	...	62
	<i>Rabi crops</i> ...	...	...	...	...	82	...	103
	Total area crop- ped on land irrigated. }	...	...	...	...	84	18	165
62	Badleshwar bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	...
	Total area crop- ped on land irrigated. }	...	...	...	...	...	...	...
63	Churari bund—							
	<i>Kharif crops</i> ...	...	...	...	...	12	...	82
	<i>Rabi crops</i> ...	...	...	...	...	23	...	54
	Total area crop- ped on land irrigated. }	...	...	...	...	35	...	136
	Carried over (bighas.)	83	2,660	3,268	18,013	15,829	22,544	25,713

60. The Mahalpur Baghwala bund is situated west of Mahalpur village. Catchment area  $1\frac{1}{2}$  sq. miles, constructed in 1846 A. D., afterwards breached and abandoned. It was restored by the State P. W. D. in 1900 A. D., adding one sluice for rear irrigation and a 200 ft. escape weir at a cost of Rs. 1,800. The length of the bund is 41 chains, height 10 ft., width at top 6 ft., top of bank 4 ft. above the escape level, slopes 2 to 1 and 1 to 1. Depth of water to be retained 6 feet.

Contour area of land submerged within the bund about 160 bighas. Contents of the reservoir about 7 million cubic feet.

Total expenditure up to the end of October 1902 A. D., Rs. 1,996.

61. The Sirrond bund is situated between Bareta and Paharpur. Catchment area 3 sq. miles, constructed by the State P. W. D. in 1900 A. D. There is a core wall across the nalla and an escape weir 200 ft. wide at the west end of the bund. The length of the bund is 40 chains, height 12 ft., width at top 7 ft., top of bank 5 ft. above the escape level, slopes 3 to 1 and 1 to 1. Depth of water to be retained 7 feet.

Contour area of land submerged within the bund about 200 bighas. Contents of the reservoir 15 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 3,597.

62. The Badleshwar bund is situated 3 miles east of Rudawal in a narrow gap between two low rocky hills. Catchment area about  $2\frac{1}{2}$  sq. miles, constructed by the State P. W. D. in 1900 A. D. at a cost of Rs. 500. The work consists of a masonry weir 38 ft. long with 4 grooved openings. Height of weir 5 ft. By means of the weir the stream can be diverted to feed the Gujar-Baroli bunds.

63. The Churari bund is situated between Bareta and Paharpur. Catchment area  $1\frac{1}{2}$  sq. miles, constructed in 1850 A. D., afterwards breached and abandoned. It was restored by the State P. W. D. in 1900 A. D. at a cost of Rs. 500. An escape weir 100 ft. wide at the west end of the bund has been added. The length of the bund is 23 chains, height 9 ft., width at top 6 ft., top of the bank 4 ft. above the escape level. Slopes 2 to 1 and 1 to 1. Depth of water to be retained 5 feet.

Contour area submerged within the bund about 80 bighas. Contents of the reservoir about 3 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,100.

## Bharatpur State.

## BARETA SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note—1 bigha = $\frac{2}{3}$ an acre.)						
	Brought forward	83	2,660	3,268	18,013	15,829	22,544	25,713
64	Gothra bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	76
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	28	10	76
65	Tarvijpur bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	27
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	26	...	27
	Carried over (bighas.) ...	83	2,660	3,268	18,013	15,883	22,554	25,816

64. The Gothra bund is situated 1 mile east from the Bareta village. This bund is formed by the embanked aqueduct of Bareta bund channel No. 2. The length of the bund is 5 chains, maximum depth of water retained 6 feet, water spread inside the bund 100 bighas. The bund is amply strong and fills well. Catchment area 3 sq. miles. There is a sluice by means of which the depth of water retained can be regulated. A larger area will be cultivated as the bund is improved.

Contour area of land submerged within the bund about 100 bighas.  
Contents of the reservoir about 7 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 200.

65. The Tarvijpur bund is situated 4 miles east from the Bareta bund. It was originally constructed in 1844 A. D., but was breached and restored and improved in 1899 A. D., front and rear slope being added and an escape weir cut. The length of the bund is 10 chains, height of the bank 12 feet, width at top 8 feet, being 4 feet above the escape level, maximum depth of water retained 8 feet, water spread inside the bund 40 bighas. There is a dry rubble stone face wall. The bund is strong and fills well.

Contour area of land submerged within the bund about 40 bighas.  
Contents of the reservoir about 2 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 180.



## Bharatpur State.

## BARETA SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Arens expressed in highas. (Note.—1 higha = $\frac{1}{2}$ an acre.)						
	Brought forward	83	2,660	3,268	18,013	15,883	22,554	25,816
66	Kheria Jat bund—		(constructed in 1902 A. D.)					
	<i>Kharif crops</i> ...		...	...	...	...	...	9
	<i>Rabi crops</i> ...		...	...	...	...	...	146
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	...		155
67	Samahad bund—		(constructed in 1902 A. D.)					
	<i>Kharif crops</i> ...	...	...	...	...	...	...	10
	<i>Rabi crops</i> ...	...	...	...	...	...	...	135
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	...	...	145
	Carried over (highas.) ...	83	2,660	3,268	18,013	15,883	22,554	26,116

66. The Kheria Jat bund is situated 3 miles south from Rupbas, originally constructed in 1844 A. D., restored by the State P. W. D. in 1902 A. D. The length of the bund is 36 chains, height of the bank 12 feet or 4 feet above the escape level, inside slope 3 to 1 and outside 2 to 1. Greatest depth of water retained 8 feet. A core wall has been added across the nulla and a passage of 200 feet length has been cleared to serve as an escape weir at the east end. Catchment area 2 sq. miles.

Contour area of land submerged within the bund about 300 bighas. Contents of the reservoir about 9 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,800.

67. The Samahad bund is situated near Maloni lower bund. This was an old bund restored by the State P. W. D. in 1902 A. D. The length of the bund is 41 chains, height of the bank 10 feet, width at top 6 feet, being 4 feet above the escape level. Inside slope 3 to 1 and outside 1 to 1. An escape passage of 200 feet length has been cleared at the west end. Catchment area 2 sq. miles.

Contour area of land submerged within the bund about 170 bighas. Contents of the reservoir about 11 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,070.

## Bharatpur State.

## BARETA SUB-DIVISION.

Statement of cultivated areas irrigation by bunds and channels.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-00 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Areas expressed in bighas. (Note.—1 bigha = $\frac{1}{4}$ an acre.)					
	Brought forward.	83	2,660	3,268	18,013	15,883	22,554	26,116
68	Jaisora bund—		(Constructed in 1902 A. D.)					
	<i>Kharif crops</i> ...	...	...	...	...	...	...	8
	<i>Rabi crops</i> ...	...	...	...	...	...	...	632
	Total area crop- ped on land irrigated.	...	...	...	...	...	...	640
	Total { Bighas.	83	2,660	3,268	18,013	15,883	22,554	26,756
	Bareta { Acres.	33	1,064	1,307	7,205	6,353	9,022	10,702
	Sub-Dn.							

68. The Jaisora bund is constructed in continuation of the Kani and Doondi bunds. It is an old bund restored by the State P. W. D. in 1902 A. D. The length of the bund is 53 chains, height of the bank 13 feet, being 4 feet above the escape level, width at top 6 feet, inside slope 3 to 1, outside 1 to 1. There is an old sluice and a new escape 150 feet wide is proposed to be constructed.

Contour area of land submerged within the bund about 500 bighas.  
Contents of the reservoir about 16 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,790.

## Bharatpur State.

*The following is a note of the Bunds in the Bareta Sub-Division which are breached and not yet restored. (October 1902 A. D.):—*

Serial No.	Name of bunds.	Remarks.
69	Khan Surjapur bund ...	<i>Khan Surjapur bund.</i> —Situated 3 miles south from Rupbas, catchment area about $1\frac{1}{2}$ sq. miles, constructed in 1844 A. D., breached and abandoned. Approximate cost of restoration about Rs. 1,500, irrigable area about 150 bighas. The zamindars do not want it restored.
70	Rani bund ...	<i>Rani bund.</i> —Situated 3 miles east from Biana, catchment area about 1 sq. mile, constructed in 1848 A. D., breached and abandoned. Approximate cost of restoration about Rs. 800. Irrigable area 60 bighas.
71	Singhania bund ...	<i>Singhania bund.</i> —Situated 4 miles east from Bareta above Kherli bund across the Khar N., catchment area 2 sq. miles, constructed in 1866 A. D., breached in June 1899. Approximate cost of restoration Rs. 1,500. Irrigable area 100 bighas, important for the wells. It is intended to restore bund.
72	Chehalpur bund ...	<i>Chehalpur bund.</i> —Situated 2 miles east from Biana, catchment area about 2 sq. miles, constructed in 1866 A. D. The land of the bund is uncultivable, on account of the soil being salt. It is proposed to cut a channel from the Gambhir river to feed it in the hope that the land will become cultivable. Approximate cost Rs. 1,500. Irrigable area 100 bighas.
73	Kani Doondi bunds ...	<i>Kani Doondi bunds.</i> —Situated 8 miles from Bareta in the Dang, catchment area about $4\frac{1}{2}$ sq. miles, constructed in 1866 A. D., breached and abandoned. Approximate cost of restoration Rs. 8,000. Irrigable area about 1000 bighas.

## BARETA SUB-DIVISION.

*Note of the Bunds not yet repaired.*—(Continued.)

Serial No.	Name of bunds.	Remarks.
74	Bysora bund	<i>Bysora bund.</i> —Situated 1 mile north-east of the Kani Doondi bunds. Catchment area about 1 sq. mile, constructed in 1845 A. D., breached and abandoned. Approximate cost of restoration Rs. 2,000. Irrigable area 250 bighas.
75	Basai bund ...	<i>Basai bund.</i> —Situated 3 miles south from Paharpur, catchment area about 1 sq. mile, constructed in 1847 A. D., breached and abandoned. The approximate cost of repair Rs. 400. Irrigable area about 75 bighas. The bund is within the catchment of the Kherli bund hence its repair is not recommended.
76	Ghuncni bund	<i>Ghuncni bund.</i> —Situated 4 miles south from the Bareta bund, catchment area about 3 sq. miles, constructed in 1866 A. D., breached, abandoned and hence no irrigation. The approximate cost Rs. 1,800, irrigable area about 200 bighas. The bund is within the catchment of the Bareta bund, hence its restoration is not recommended.
77	Sultanpur bund	<i>Sultanpur bund.</i> —Situated 2 miles west from Mohamadpur village, catchment area about 2½ sq. miles, constructed in 1866 A. D. The land is sandy. There is only about 30 bighas of cultivation. Petty repairs would cost Rs. 200.
78	Bhawanpura bund	<i>Bhawanpura bund.</i> —Situated 5 miles north from the Bareta bund, catchment area about 3 sq. miles, constructed in 1844 A. D., breached and abandoned. Restoration of the bund is not necessary. The land being irrigated by channel No. 2 of Bareta bund.

## BARETA SUB-DIVISION.

*Note of the Bund not yet repaired.*—(Continued.)

Serial No.	Name of bunds.	Remarks.
79	Samesra bund ...	<i>Samesra bund.</i> —Situated about 6 miles from Rupbas, catchment area is about $1\frac{1}{2}$ sq. miles, constructed in 1844 A. D., breached and abandoned. Approximate cost of restoration Rs. 1,800, an irrigable area 200 bighas. The land is irrigated by the Bakholi and Shakarpur channel of the Gambhir river. The Zamindars do not want it repaired.
80	Qasba Rupbas bund ...	<i>Qasba Rupbas bund.</i> —Situated in Rupbas, catchment area is 3 sq. miles, constructed in 1850 A. D., breached in June 1899. Approximate cost of restoration Rs. 3,800. Irrigable area 400 bighas. The land is now being irrigated in the Dhana and Bakholi channels from the Gambhir river. The Zamindars do not want it repaired.
81	Shekhpur bund ...	<i>Shekhpur bund.</i> —Situated 8 miles east from Rupbas, catchment area about $2\frac{1}{2}$ sq. miles, constructed in 1844 A. D., breached and abandoned. Approximate cost Rs. 1,200. Irrigable area above 600 bighas. The land is irrigated from the Bakholi and Shakarpur channels of the Gambhir river. The Zemindars do not want it repaired.
82	Kanjar Baroli bund ...	<i>Kanjar Baroli bund.</i> —Situated near Dabna channel, catchment area about $1\frac{1}{2}$ sq. miles, constructed in 1844 A. D., breached and abandoned. Approximate cost of repair Rs. 1,000. Irrigable area 200 bighas not worth restoring.
83	Jatroli 2 bunds ...	<i>Jatroli 2 bunds.</i> —Situated 3 miles north-east from Badleshwar, catchment area about 1 sq. mile, constructed in 1844 A. D., breached and abandoned. Approximate cost of restoration Rs. 1,000. Irrigable area about 100 bighas not worth restoring.

## BARETA SUB-DIVISION.

*Note of the Bund not yet repaired.—(Concluded.)*

Serial No.	Name of bunds.	Remarks.
84	Mahi bund ...	<i>Mahi bund.</i> —Situated near Samahad, catchment 1 sq. mile, constructed in 1850 A. D., breached and abandoned. Approximate cost of repair Rs. 200. Irrigable area about 50 bighas.
85	Doomaria bund ...	<i>Doomaria bund.</i> —Situated near Biana, catchment $\frac{3}{4}$ of sq. mile, constructed in 1866 A. D., breached and abandoned. Approximate cost of repair Rs. 100. Irrigable area 30 bighas.
86	Rajpura bund ...	<i>Rajpura bund.</i> —Situated north of Mahalpur Chura village, catchment 1 sq. mile, constructed in 1850 A. D., breached and abandoned. Approximate cost of restoration Rs. 500. Irrigable area 70 bighas.





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## WEIR SUB-DIVISION.

(Biana pergunnah West of the Gambhir River, Weir,  
Bhusawar and part of Akheygarh pergunnah.)

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## Bharatpur State.

## WEIR SUB-DIVISION.

Statement of areas cultivated after irrigation by bunds and channels.

Serial No.	Name of irrigation work.			1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
	Rainfall in inches measured at Weir.			16.13	15.21	27.89	17.64	18.84	17.94	24.64
				Areas expressed in bighas. (Note—1 bigha = $\frac{1}{2}$ an acre).						
87	Halena canal	...	...	...	3,854	5,280	11,269	17,351	9,315	6,687
88	Pathena "	...	...	...	...	...	...	8,307	3,562	3,300
89	Lalpur "	...	...	...	234	507	756	1,268	1,220	1,317
90	Lalpur bund	...	...	...	573	1,346	2,296	3,279	1,874	2,696
91	Jiwad "	...	...	...	264	402	582	780	694	990
92	Jatpura "	...	...	...	15	161	114	113	207	185
93	Lohasa "	...	...	...	137	322	298	301	713	412
94	Oolhoo canal	...	...	...	904	523	395	2,037	373	...
95	Ataripur bund	...	...	19	666	1,153	168	1,033	819	...
96	Malpur "	...	...	...	61	3	...	104	38	95
97	Khirni "	...	...	...	31	38	51	114	48	137
98	Nyagaon "	...	...	...	...	...	...	98	23	16
99	Dnyapur "	...	...	...	36	42	55	47	44	53
100	Gadhi "	...	...	...	44	86	24	135	28	76
101	Boraj "	...	...	...	86	37	23	51	1	78
102	Bhusawar "	...	...	173	268	358	301	452	384	398
103	Nimli "	...	...	...	...	...	...	99	56	37
104	Raipur "	...	...	98	295	308	75	308	202	196
105	Bhondgaon bund	...	...	...	171	254	...	104	94	53
106	Jaggiwanpur "	...	...	...	87	138	...	86	155	89
107	Mokroli "	...	...	...	...	116	...	59	23	38
108	Bhopur "	...	...	...	...	91	...	32	31	22
109	Lakhanpur "	...	...	...	...	...	...	116	18	141
110	Mohari "	...	...	...	63	866	152	474	193	153
111	Kota Patti "	...	...	...	77	205	...	194	81	80
112	Lalchand "	...	...	...	194	264	42	112	114	10
	Carried over (bighas)			290	8,060	12,530	16,601	37,055	20,310	17,258

## Bharatpur State.

## WEIR SUB-DIVISION.—(Concl'd.)

Statement of areas cultivated after irrigation by bunds and channels.

Serial No.	Name of irrigation work.	1896-1897 A. D.	1897-1898 A. D.	1898-1899 A. D.	1899-1900 A. D.	1900-1901 A. D.	1901-1902 A. D.	1902-1903 A. D.
	Rainfall in inches measured at Weir.	16.13	15.21	27.89	17.64	18.84	17.94	24.64
			Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre)					
	Brought forward ...	290	8,060	12,530	16,601	37,055	20,310	17,258
113	Raniwala bund ...	121	680	1,003	317	676	386	600
114	Umrend „ ...	...	76	466	51	116	88	190
115	Morodha „ ...	243	415	809	241	450	324	538
116	Khori „ ...	80	125	610	290	153	36	200
117	Rajgarh „ ...	52	66	204	139	103	51	258
118	Qasba Binna bund ...	...	...	75	65	142	...	213
119	Bhimnagar „ ...	...	...	205	30	245	82	202
120	Murki bund No. 1 ...	...	...	...	...	39	24	148
121	„ „ No. 2 ...	...	...	251	251	300	67	347
122	„ „ No. 3 ...	...	...	221	486	296	178	430
123	Kanawar bund ...	219	241	675	398	373	258	650
124	Jalkhor „ ...	...	71	90	52	110	46	43
125	Bagren „ ...	...	72	...	...	72	...	131
126	Khatnawli „ ...	...	...	...	...	904	1,447	1,322
127	Bhangora „ No. 1 ...	...	...	(Recently built.)		93	...	43
128	Damdama „ ...	...	...	...	...	38	82	248
129	Mehloni „ ...	...	...	...	...	115	218	114
130	Bullabgarh „ ...	...	...	...	...	354	129	165
131	Bansi „ ...	...	(recently constructed.)				...	739
132	Shahpur „ ...	...	...	do.	...	do.	...	123
133	Alipur „ ...	...	...	do.	...	do.	...	131
134	Kaml Hauz bund ...	...	...	do.	...	do.	...	30
135	Sita bund ...	...	...	do.	...	do.	...	48
136	Kair „ ...	...	...	do.	...	do.	...	29
	Total Weir { Bighas ...	1,005	9,806	17,109	18,921	41,634	23,726	24,290
	Sub-Division { Acres ...	402	3,922	6,844	7,568	16,654	9,490	9,716



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DETAILS OF IRRIGATION WORKS  
IN THE  
WEIR SUB-DIVISION.

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## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Area expressed in bighas. (Note.—1 bigha = 1 an acre)					
57	Halena canal—							
	<i>Kharif crops</i> ...	...	...	...	...	6,015	3,697	3,524
	<i>Rabi crops</i> ...	...	...	...	...	11,337	6,213	5,473
	<i>Total area irrigated</i> ...	...	3,854	5,280	11,260	17,353	9,910	9,007
58	Pathana canal—		Constructed in 1870 A. D.					
	<i>Kharif crops</i> ...	...	...	...	...	...	1,183	1,734
	<i>Rabi crops</i> ...	...	...	...	...	...	2,070	2,313
	<i>Total area irrigated</i> ...	...	...	...	...	8,307	3,253	3,300
	Carried over (bighas.) ...	...	3,854	5,280	11,260	17,353	12,877	9,007

87. The Halena canal is situated 1 mile west of the Halena village on the north bank of the Banganga river from which it is supplied. There is no weir. The canal bed is level with the river, and draws a full supply during flood only. The canal was constructed in 1897—1900, the bedwidth having been made at first 20 ft. only, enlarged to 35 ft. in 1898, and to 50 ft. in 1900. The present dimensions are bedwidth 50 ft., length 2 miles. There is a masonry head regulator and two falls. Cross bunds have been built for distribution of the discharge along the Halena-Bharatpur road which acts as a training bank. The cost of work up to the 31st March 1900 was Rs. 21,300, subsequent expenditure up to the end of June 1900 about Rs. 500.

Various other subsidiary works have been built or are contemplated.

Total expenditure up to the end of 1902 A. D., Rs. 34,019.

88. The Pathena canal was constructed in 1900 A. D. It is now 30 ft. bedwidth, length 2 miles. It is situated 2 miles south of the Pathena village on the north bank of the Banganga river from which it is supplied. The canal bed is level with the river bed. There are no head works at present. It is intended to widen and extend the canal according to the demand for flood irrigation in the district commanded. During 1901-1902 several subsidiary banks have been constructed to guide and retain the flood discharged by the canal.

Total expenditure up to the end of 1902 A. D., Rs. 10,353.



## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the year.

Serial No	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in Bighas.						
		Note: 1 Bigha = $\frac{1}{16}$ acre = 14,062 sq. ft.						
80	Brought forward	...	3,751	5,210	11,226	21,957	12,577	2,637
	Lalpur canal -							
	<i>Kharif crops</i> ...	...	...	...	...	247	271	241
	<i>Rabi crops</i> ...	...	...	...	...	1,074	630	1,074
	Total area crops fed or land irrigated }	...	231	27	27	1,321	1,221	1,317
82	Lalpur land -							
	<i>Kharif crops</i> ...	...	...	...	...	21	47	137
	<i>Rabi crops</i> ...	...	...	...	...	2,527	1,523	2,527
	Total area crops fed or land irrigated }	...	573	1,310	2,297	2,548	1,570	2,664
	Carried over ... (bighas.)	...	4,661	7,133	14,321	30,205	15,971	14,000

89. The Lalpur canal is situated on the south bank of the Banganga river. The mouth of the canal is 2 miles south of Halena whence it runs near the village of Hasaunda and Jatbalai into the basin of the Lalpur bund. The canal was constructed by the late Maharaja Jaswant Singh to supply the Lalpur bund but it was abandoned when the bund was breached. It is supplied from the Banganga river. There is no weir across the river but the canal bed is level with the river bed and draws a full supply during floods only. In 1896—1900 the canal has been graded, and widened from 10 ft. to 50 ft. bedwidth. The length is now  $3\frac{3}{4}$  miles. A masonry head regulator, and a fall have been built.

Total expenditure up to the end of 1902 A. D., Rs. 23,203.

90. The Lalpur bund is situated about 2 miles north-east of Weir. It is fed by the Lalpur canal from the Banganga river. The bund has also a local catchment which has been intercepted in Jaipur territory. The bund was constructed in 1851 A. D. by Maharaja Balwant Singh. In 1884 A. D. it was breached and afterwards abandoned. In the years 1896-97 the bank has been raised, widened and extended. Masonry core walls have been built across the old breaches and an escape weir 800 ft. long built. The sluices have been improved and channels for irrigation provided. The cost of the above restoration has been Rs. 45,400. Length of dam 3 miles, top width 8 ft., slopes 3 to 1 and 2 to 1, height of top of dam above the escape level 8 ft. Where the bank is high it is protected by masonry face or core walls. Greatest depth of water 12 ft. Water spread at escape level 2,900 bighas. There are 4 sluices from which a series of subsidiary bunds can be filled, and there is a large area of waste land in rear to be irrigated. The bund is thickly planted with fine old trees. There is a rest hut on the bund.

Contour area of land submerged within the bund about 3,100 bighas. Contents of the reservoir about 162 million cubic feet.

Total expenditure up to the end of 1904 A. D., 46,952.

## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. Note—1 bigha = $\frac{1}{4}$ an acre.)						
89	Brought forward..	...	3,854	5,280	11,206	25,658	12,877	9,687
	Lalpur canal—							
	<i>Kharif crops</i> ...	...	...	...	...	217	271	241
	<i>Rabi crops</i> ...	...	...	...	...	1,051	949	1,073
	<i>Total area crop- fed on land irrigated.</i> }	...	234	507	756	1,268	1,220	1,317
90	Lalpur bund—							
	<i>Kharif crops</i> ...	...	...	...	...	24	40	137
	<i>Rabi crops</i> ...	...	...	...	...	2,675	1,828	2,550
	<i>Total area crop- fed on land irrigated.</i> }	...	573	1,346	2,295	3,279	1,874	2,696
	Carried over ... (bighas.)	...	4,661	7,133	14,321	30,205	15,971	14,000

89. The Lalpur canal is situated on the south bank of the Banganga river. The mouth of the canal is 2 miles south of Halena whence it runs near the village of Hasaunda and Jatbalai into the basin of the Lalpur bund. The canal was constructed by the late Maharaja Jaswant Singh to supply the Lalpur bund but it was abandoned when the bund was breached. It is supplied from the Banganga river. There is no weir across the river but the canal bed is level with the river bed and draws a full supply during floods only. In 1896—1900 the canal has been graded, and widened from 10 ft. to 50 ft. bedwidth. The length is now  $3\frac{3}{4}$  miles. A masonry head regulator, and a fall have been built.

Total expenditure up to the end of 1902 A. D., Rs. 23,203.

90. The Lalpur bund is situated about 2 miles north-east of Weir. It is fed by the Lalpur canal from the Banganga river. The bund has also a local catchment which has been intercepted in Jaipur territory. The bund was constructed in 1851 A. D. by Maharaja Balwant Singh. In 1884 A. D. it was breached and afterwards abandoned. In the years 1896-97 the bank has been raised, widened and extended. Masonry core walls have been built across the old breaches and an escape weir 800 ft. long built. The sluices have been improved and channels for irrigation provided. The cost of the above restoration has been Rs. 45,400. Length of dam 3 miles, top width 8 ft., slopes 3 to 1 and 2 to 1, height of top of dam above the escape level 8 ft. Where the bank is high it is protected by masonry face or core walls. Greatest depth of water 12 ft. Water spread at escape level 2,900 bighas. There are 4 sluices from which a series of subsidiary bunds can be filled, and there is a large area of waste land in rear to be irrigated. The bund is thickly planted with fine old trees. There is a rest hut on the bund.

Contour area of land submerged within the bund about 3,100 bighas. Contents of the reservoir about 162 million cubic feet.

Total expenditure up to the end of 1904 A. D., 46,952.

## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-00 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Areas expressed in highas. (Note.—1 higha = 7 anas.)					
	Brought forward.	...	4,661	7,133	14,321	30,205	15,971	14,000
91	Jiwad bund—							
	<i>Kharif crops</i> ...	...	...	...	...	22	117	128
	<i>Rabi crops</i> ...	...	...	...	...	758	577	862
	<i>Total area crop- ped on land irrigated.</i> }	...	264	402	582	780	694	990
92	Jatpura bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	21	...
	<i>Rabi crops</i> ...	...	...	...	...	...	186	185
	<i>Total area crop- ped on land irrigated.</i> }	...	15	161	114	113	207	185
93	Lohasa bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	202	...
	<i>Rabi crops</i> ...	...	...	...	...	...	513	412
	<i>Total area crop- ped on land irrigated.</i> }	...	137	322	298	301	715	412
	Carried over (highas.)	...	5,977	8,018	15,315	31,399	17,585	15,587

91. The Jiwad bund is situated 2 miles east of Weir. It is fed by the Lalpur bund. Constructed in 1865 A. D., breached in 1884 and afterwards abandoned. It was restored in 1897 A. D., the bund being widened and raised, and a core wall being built across the breach. The bund is now 76 chains long, 5 ft. top width, slopes 3 to 1 and 2 to 1, top of dam 6 ft. above the escape level. There are 4 sluices. Cost of work done up to 31st March 1900, Rs. 4,400. There is a natural escape 50 ft. long.

Contour area of land submerged within the bund about 610 bighas.  
Contents of the reservoir about 22 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 4,525.

92. The Jatpura bund is situated  $3\frac{1}{2}$  miles south of Weir. It is fed by the Lalpur bund. Constructed in 1848. It was improved by the State P. W. D. in 1897 A. D. at a cost of Rs. 1,100. The length is 42 chains, top width 4 ft., height of dam 4 ft. There is only 1 sluice in the bund. There is a natural escape 200 ft. long.

Contour area of land submerged within the bund about 227 bighas.  
Contents of the reservoir about 4 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,653.

93. The Lohasa bund is situated 4 miles from Weir near Lohasa. It is fed by the Lalpur bund. Constructed in 1845, breached in 1884, restored by the State P. W. D. in 1897 A. D. A core wall being built across the breach, and the bank being raised and strengthened at a cost of Rs. 3,100. There are 2 sluices in the bund. There is a natural escape 300 ft. long.

Contour area of land submerged within the bund about 450 bighas.  
Contents of the reservoir about 10 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 4,719.

## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-00 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)						
	Brought forward.	...	5,077	3,018	15,315	31,399	17,585	15,587
94	Oohloo canal—							
	<i>Kharif crops</i> ...	...	...	...	...	1,321	228	...
	<i>Rabi crops</i> ...	...	...	...	...	716	145	...
	<i>Total area cropped on land irrigated.</i> }	...	904	523	395	2,037	373	nil
95	Ataripura bund—							
	<i>Kharif crops</i> ...	...	...	...	...	120	126	...
	<i>Rabi crops</i> ...	...	...	...	...	913	693	...
	<i>Total area cropped on land irrigated.</i> }	19	666	1,153	168	1,033	819	nil
	Carried over (bighas.) ...	19	6,647	9,694	15,878	34,469	18,777	15,587

94. The Oohloo canal is situated 4 miles north of Bhusawar, and is on the south bank of the Banganga river. Constructed in the time of Maharaja Balwant Singh to supply the Ataripura bund but it afterwards became silted up and disused. In 1897—1900 it was widened and improved by the State P. W. D. at a cost of Rs. 12,800, masonry works included. The canal is now 6 miles long, bedwidth 20 ft. This canal has not yet been a success owing to the bed being too high. The bed has been lowered to the bed of the river, and it is hoped that it will draw a supply in future.

Total expenditure up to the end of 1902 A. D., Rs. 15,466.

95. The Ataripura bund is situated in a straight line from south to north from Siras to Jhala tala. Catchment area 19 sq. miles, but the stream is intercepted in Jaipur territory and no floods of importance are now received from it. It is intended to feed it from the Banganga river but no floods have yet reached the bund. Constructed in 1852 A. D., breached in 1884 A. D., restored in 1896. Length of the bund  $3\frac{1}{2}$  miles, 7 ft. top width, top of bund 7 ft. above the escape level, slopes 3 to 1 and 2 to 1.

The following work has been done by the State P. W. D. A core wall has been built across the old breach, and the bank raised and strengthened. Two escape weirs each 500 ft. wide have been constructed.

Cost of work up to 31st March 1900 Rs. 24,380. Water-spread inside the bund below escape level 1,500 bighas. The bund is strong and protected with fine old trees. There is a rest hut on it. There are 7 sluices for irrigation in rear.

Contour area of land submerged within the bund at escape level about 1,600 bighas. Contents of the reservoir about 56 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 24,432.



## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note-1 bigha = $\frac{1}{2}$ an acre).						
96	Brought forward	19	6,647	9,694	15,878	34,469	18,777	15,587
	Malpur bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	8	39
	<i>Rabi crops</i> ...	...	...	...	...	...	30	56
	<i>Total area crop- ped on land irrigated.</i> }	...	61	3	...	104	38	95
97	Khirmi bund—							
	<i>Kharif crops</i> ...	..	...	...	...	31	11	8
	<i>Rabi crops</i> ...	...	...	...	...	83	37	129
	<i>Total area crop- ped on land irrigated.</i> }	...	31	38	51	114	48	137
98	Nayagaon bund—							
	<i>Kharif crops</i> ...	...	...	...	...	80	...	...
	<i>Rabi crops</i> ...	...	...	...	...	18	...	16
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	98	23	16
	Carried over ... (bighas)	19	6,739	9,735	15,929	34,788	18,886	15,835

96. The Malpur bund lies about 5 miles due west of Bhusawar. Catchment area about  $1\frac{1}{2}$  sq. miles. An old bund restored in 1896. Length of the bund 3,000 ft., top width 5 ft., top of bund 5 ft. above the escape level. Slopes 3 to 1 and 2 to 1. Work done by the State P. W. D. improvement of bund, construction of an irrigation sluice. Cost of work up to 31st March 1900, Rs. 2,000. It has a natural escape 100 ft. long.

Contour area submerged within the bund about 165 bighas. Contents of the reservoir about  $4\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 2,000.

97. The Khirni bund is situated  $4\frac{1}{2}$  miles due west of Bhusawar. Catchment area  $\frac{1}{2}$  sq. mile. An old bund now maintained by the P. W. D. Length of bund 5,200 ft., top width 3 ft., top of bund 3 ft. above the escape level. Slopes 2 to 1. There are 3 sluices which are used for escapes.

Contour area submerged within the bund about 100 bighas. Contents of the reservoir about  $1\frac{1}{4}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 52.

98. The Nayagaon bund is situated  $1\frac{1}{2}$  miles west of Bhusawar. Catchment area 1 sq. mile. An old bund now maintained by the P. W. D., repaired in 1896. Top width 4 ft., slopes 3 to 1 and 2 to 1. Work done by the P. W. D. raising the bank. Cost of work Rs. 825. The soil is sandy. Cultivation little.

Contour area submerged within the bund about 100 bighas. Contents of the reservoir about  $1\frac{1}{4}$  million cubic feet.

Total expenditure up to the end of 1902 A. D. Rs. 1,177.

## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
Areas expressed in bighas (Note.—1 bigha = $\frac{2}{3}$ an acre.)								
99	Brought forward	19	6,739	9,735	15,929	34,785	18,886	15,835
	Dayapur bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	19	12
	<i>Rabi crops</i> ...	...	...	...	...	...	25	40
	Total area cropped on land irrigated. }	...	36	42	55	47	44	52
100	Gadhi bund—							
	<i>Kharif crops</i> ...	...	...	...	...	37	...	...
	<i>Rabi crops</i> ...	...	...	...	...	98	...	76
	Total area cropped on land irrigated. }	...	44	86	24	135	28	76
101	Boraj bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	13
	<i>Rabi crops</i> ...	...	...	...	...	...	...	65
	Total area cropped on land irrigated. }	...	86	37	23	51	1	78
	Carried over ... (bighas).	19	6,905	9,900	16,031	35,018	18,959	16,041

99. Dayapur bund is situated about 2 miles west of Bhusawar. Catchment area 1 sq. mile. An old bund now maintained by the P.W.D., repaired in 1896 at a cost of Rs. 140. Length 1,600 ft. Work done by the P. W. D. raising of bank. There are 2 sluices.

Contour area submerged within the bund about 125 bighas. Contents of the reservoir about  $1\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 259.

100. The Gadhi bund is situated about  $1\frac{1}{2}$  miles west of Bhusawar, fed from Choli nala. Top width 4 ft., being 4 ft. high above the escape level, slopes 3 to 1 and 2 to 1, length of the bund 1,700 ft. There is a natural escape 50 ft. long. Work done by the State P. W. D. improving the bank. There are 2 sluices.

Contour area submerged within the bund about 150 bighas. Contents of the reservoir about  $2\frac{2}{3}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 380.

101. The Boraj bund is situated 1 mile north-west of Bhusawar. Catchment area about  $3\frac{1}{2}$  sq. miles. Length of the bund 2,200 ft., top width 5 ft., height of bund 5 ft. above the escape level. There are 2 sluices, slopes 3 to 1 and 2 to 1. Work done by the P. W. D. raising the bank and construction of a new sluice. There is a natural escape 200 ft. long. Cost of work up to 31st March 1900 A. D., Rs. 2,808.

Contour area submerged within the bund about 350 bighas. Contents of the reservoir about 12 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 2,813.

## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)					
	Brought forward	19	6,905	9,900	16,031	35,018	18,959	16,041
102	Bhusawar bund—							
	<i>Kharif crops</i> ...	...	...	...	...	101	143	20
	<i>Rabi crops</i> ..	...	...	...	...	351	241	378
	Total area crop- ped on land irrigated. }	173	268	358	301	452	384	398
103	Nimli bund—							
	<i>Kharif crops</i> ...	...	...	...	...	77	10	2
	<i>Rabi crops</i> ...	...	...	...	...	22	46	35
	Total area crop- ped on land irrigated. }	...	...	...	...	99	56	37
104	Raipur bund—							
	<i>Kharif crops</i> ...	...	...	...	...	38	7	50
	<i>Rabi crops</i> ...	...	...	...	...	270	195	146
	Total area crop- ped on land irrigated. }	98	295	308	75	308	202	196
	Carried over (bighas.)	290	7,468	10,566	16,407	35,877	19,601	16,672

102. The Bhusawar bund is situated  $\frac{1}{2}$  mile south of Bhusawar. Catchment area  $2\frac{1}{2}$  sq. miles. Top width 5 ft., height of bund above the escape level 5 ft., slopes 3 to 1 and 2 to 1. Length of bund 7,000 ft. Work done by the State P. W. D. raising bank and construction of one sluice. There is a natural escape 100 ft. long. Cost of work Rs. 4,518.

Contour area submerged within the bund about 450 bighas. Contents of the reservoir about 11 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 5,126.

103. The Nimli bund is situated 3 miles east of Bhusawar. Catchment area 1 sq. mile. A new bund constructed by the P. W. D. in 1897 as a famine relief work. Length of the bund 3,900 ft., top width 5 ft., height of top above the escape level 5 ft., slopes 3 to 1 and 2 to 1. There are core walls across the nullas. There is a natural escape 100 ft. long. There is no sluice. Cost of work Rs. 5,380. The soil is sandy and is not likely that there will be more than 50 to 100 bighas of cultivation, but the bund helps the village wells.

Contour area submerged within the bund about 150 bighas. Contents of the reservoir about  $1\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 5,395.

104. The Raipur bund is situated south of Weir at two miles distance. Catchment area  $1\frac{1}{2}$  sq. miles. Constructed in 1862, restored in 1897. Length of bund 4,900 ft., top width 5 ft., height of bund above the escape level 5 ft., slopes 3 to 1 and 2 to 1. There are 3 sluices with distributary channels 5 ft. wide. There is a natural escape 400 ft. wide. Cost of work done by P. W. D. Rs. 2,787.

Contour area submerged within the bund about 250 bighas. Contents of the reservoir about  $6\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 3,698.

## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{1}{4}$ an acre.)						
	Brought forward.	290	7,468	10,566	16,407	35,877	19,601	16,672
105	Bhondgaon bund.							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	53
	<i>Total area cropped on land irrigated.</i> }	...	171	254	...	104	94	53
106	Jagjiwanpur bund							
	<i>Kharif crops</i> ...	...	...	...	...	...	12	...
	<i>Rabi crops</i> ...	...	...	...	...	...	143	89
	<i>Total area cropped on land irrigated.</i> }	...	87	138	...	86	155	89
107	Mokroli bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	38
	<i>Total area cropped on land irrigated.</i> }	...	...	116	...	59	23	38
	Carried over (bighas.) ...	290	7,726	11,074	16,407	36,126	19,873	16,852

105. The Bhondgaon bund lies about 2 miles from Weir on the Bhusawar road. Catchment area 1 sq. mile. The bund was constructed by Kaliyan Singh, Tehsildar of Weir, and repaired in 1896 by the State P. W. D., length of the bund 6,700 ft., top width 4 ft., height of bund above H. W. L. 4 ft., slope on both sides 2 to 1. There are 4 sluices for irrigation. There is a natural escape 150 ft. long. Cost of repairs up to 31st March 1900, Rs. 213.

Contour area submerged within the bund about 200 bighas. Contents of the reservoir about  $3\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 430.

106. The Jagjiwanpur bund lies 3 miles from Weir on the Weir-Bhusawar road. Catchment area 1 sq. mile. Length of the bund 5,500 ft. Repaired in 1896 by P. W. D., top width 4 ft., height 4 ft., both slopes 2 to 1. There is a natural escape 100 ft. long, there are 3 sluices. Cost of repairs Rs. 442.

Contour area of land submerged within the bund about 150 bighas. Contents of the reservoir about 2 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 570.

107. The Mokroli bund lies 2 miles from Weir. Catchment area 1 sq. mile. The bund was constructed in 1862 A. D., top width 3 ft., height of bund 3 ft. above the escape level. Natural escape 100 ft. long. There is one sluice. Cost of repairs done Rs. 72.

Contour area of land submerged within the bund about 100 bighas. Contents of the reservoir about  $1\frac{3}{4}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 133.



## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Areas expressed in bighas. (Note.—1 bigha = $\frac{1}{4}$ an acre.)					
	Brought forward..	290	7,726	11,074	16,407	36,126	19,873	16,852
108	Bhopur bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	22
	Total area crop- ped on land irrigated. }	...	...	91	...	33	31	22
109	Lakhanpur bund—							
	<i>Kharif crops</i> ...	...	...	...	...	15	...	32
	<i>Rabi crops</i> ...	...	...	...	...	101	...	109
	Total area crop- ped on land irrigated. }	...	...	...	...	116	18	141
110	Mohari bund—							
	<i>Kharif crops</i> ...	...	...	...	...	24	21	23
	<i>Rabi crops</i> ...	...	...	...	...	450	172	130
	Total area crop- ped on land irrigated. }	...	63	866	152	474	103	153
111	Kota Patti bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	80
	Total area crop- ped on land irrigated. }	...	77	205	...	194	81	80
	Carried over (bighas.)	290	7,866	12,236	16,559	36,943	20,196	17,248

108. The Bhopur bund is situated 2 miles north-west from Weir. The bund was repaired in 1895 A. D. Length of bund 2,500 ft., top width 3 ft. There is only one sluice. Natural escape 100 ft long.

Contour area of land submerged within the bund about 70 bighas. Contents of the reservoir about  $\frac{3}{4}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 12.

109. The Lakhanpur bund lies south-east from Weir. Catchment area  $1\frac{1}{2}$  sq. miles. The bund was constructed by the late Maharaja of Weir, afterwards breached and abandoned. Restored in 1899 by the P. W. D. Length of bund 4,000 ft., top width 5 ft., height 5 ft., slopes 3 to 1 and 2 to 1. Earth work repaired. Cost of work Rs. 809. There are 3 sluices. Natural escape 200 ft. long.

Contour area of land submerged within the bund about 170 bighas. Contents of the reservoir about 2 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 908.

110. The Mohari bund lies only one mile north from Weir. Catchment area 4 sq. miles. It is an old bund, repaired in 1896 A. D. by P. W. D. Length of bund 12,000 ft., top width 5 ft., slopes 3 to 1 and 2 to 1. Cost of work Rs. 503. There are 6 sluices. Natural escape 100 ft. long.

Contour area of land submerged within the bund about 600 bighas. Contents of the reservoir about 20 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 763.

111. The Kota Patti bund is situated 1 mile due south-west from Weir. Catchment area  $1\frac{1}{2}$  sq. miles, constructed in 1864 A. D., afterwards breached, improved by the P. W. D. in 1897. Length of the bund 6,000 ft., top width 5 ft., slopes 3 to 1 and 2 to 1. Cost of work done by P. W. D. Rs. 3,270. There are 3 sluices. Natural escape 200 ft. long.

Contour area of land submerged within the bund about 380 bighas. Contents of the reservoir about 8 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 3,613.

## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.— 1 bigha = $\frac{2}{3}$ an acre.)						
112	Brought forward	290	7,866	12,236	16,559	36,943	20,196	17,248
	Lalchand bund—							
	<i>Khariif crops</i> ...	...	...	...	..	...	28	...
	<i>Rabi crops</i> ...	...	...	...	..	..	86	9
	<i>Total area crop- ped on land irrigated.</i> }	...	194	264	42	112	114	9
113	Raniwala bund—							
	<i>Khariif crops</i> ...	...	...	...	...	8	51	19
	<i>Rabi crops</i> ...	...	...	...	...	668	335	581
	<i>Total area crop- ped on land irrigated.</i> }	121	680	1,003	317	676	386	600
114	Umrend bund—							
	<i>Khariif crops</i> ...	...	...	...	...	...	...	25
	<i>Rabi crops</i> ...	...	...	...	...	..	...	165
	<i>Total area crop- ped on land irrigated.</i> }	...	76	466	51	116	88	190
	Carried over ... (bighas)	411	8,816	13,969	16,969	37,847	20,784	18,047

112. The Lalchand bund is situated  $\frac{1}{2}$  mile west from Weir. Catchment area 4 sq. miles. It was constructed to supply the Naulakha Bagh but afterwards abandoned, repaired in 1897 A. D. Length of the bund 4,300 ft., top width 5 ft., slopes 3 to 1 and 2 to 1. Cost of work done by the P. W. D. Rs. 800. The bund irrigates the garden and helps the wells. There are 3 sluices. Natural escape 100 ft. long.

Contour area of land submerged within the bund about 200 bighas.  
Contents of the reservoir about  $4\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 900.

113. The Raniwala bund is situated 1 mile from Weir on the Byana road. Catchment area 3 sq. miles. Improved in 1899 A. D. Length of the bund is 8,000 ft., top width 4 ft., slopes 3 to 1 and 2 to 1. Works done by the P. W. D. raising bank, improving sluices, constructing masonry weir 80 ft. long. Cost of work up to 31st March 1900, Rs. 5,925. There are 4 sluices.

Contour area of land submerged within the bund about 450 bighas.  
Contents of the reservoir about 17 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 6,979.

114. The Umrend bund lies about 6 miles north-west from Biana. Catchment area  $1\frac{1}{4}$  sq. miles. Constructed in 1864 A. D., but breached, restored in 1897 A. D. Length of the bund 2,900 ft., top width 5 ft., slopes 3 to 1 and 2 to 1. Construction of a core wall across the breach, improvement of bank, sluices, and escape. There are 3 sluices. Natural escape 150 ft. long.

Contour area of land submerged within the bund about 150 bighas.  
Contents of the reservoir about 6 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 5,077.

**Bharatpur State.**  
**WEIR SUB-DIVISION.**

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note—1 bigha = $\frac{2}{3}$ an acre.)						
115	Brought forward.	411	8,816	13,969	16,969	37,847	20,784	18,047
	Morodha bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	95	64
	<i>Rabi crops</i> ...	...	...	...	...	...	229	474
	<i>Total area cropped on land irrigated.</i> }	243	415	809	241	450	324	538
116	Khori bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	290
	<i>Total area cropped on land irrigated.</i> }	86	125	610	290	153	36	290
117	Rajgarh bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	258
	<i>Total area cropped on land irrigated.</i> }	52	66	204	139	103	51	258
118	Qasba Biana bund							
	<i>Kharif crops</i> ...	...	...	...	...	16	...	37
	<i>Rabi crops</i> ...	...	...	...	...	126	...	176
	<i>Total area cropped on land irrigated.</i> }	...	..	75	65	142	...	213
	Carried over (bighas).	786	9,422	15,667	17,704	38,695	21,195	19,346

115. The Morodha bund is situated about 2 miles east from Weir near the Byana road. Catchment area  $1\frac{1}{2}$  sq. miles. Constructed in 1872 A. D., was improved and extended in 1896. Length of the bund 6,100 ft., top width 5 ft., slopes 3 to 1 and 2 to 1. Cost of work done by P. W. D. up to 31st March 1900, Rs. 4,130. There are 3 sluices with distributaries. Natural escape 300 ft. long. The bund requires raising again.

Contour area of land submerged within the bund about 350 bighas. Contents of the reservoir about 9 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 5,159.

116. The Khorī bund lies about  $2\frac{1}{2}$  miles east from Weir. Catchment area 1 sq. mile, constructed in 1877 A. D. and improved by P. W. D. in 1897 A. D. Length of the bund 5,800 ft., top width 5 ft., slopes 3 to 1 and 2 to 1. Work done by P. W. D. raising bank, improving the sluices, digging irrigation channels, cost of work up to the end of March 1900, Rs. 4,133. There is a natural escape passage 200 ft. wide. There are 3 sluices. The bank requires raising again.

Contour area of land submerged within the bund about 350 bighas. Contents of the reservoir about 9 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 6,606.

117. The Rajgarh bund lies about 4 miles east from Weir. Catchment area 1 sq. mile. Constructed in 1864 A. D. Improved by P. W. D. in 1896. Length of the bund 3,900 ft., top width 4 ft., slopes 3 to 1 and 2 to 1. Work done by P. W. D. raising bank. There is a natural escape 200 ft. long. Cost of work Rs. 1,458.

Contour area of land submerged within the bund about 150 bighas. Contents of the reservoir about  $3\frac{1}{4}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,850.

118. The Qasba Biana bund lies about 1 mile north-west from Biana. Constructed in 1870 A. D. Improved in 1897. Length of the bund 5,600 ft., top width 5 ft., slopes 3 to 1 and 2 to 1. Construction of a core wall across the breach, improvement of bank and sluices, cost about Rs. 1,000. There are 3 sluices, masonry escape 150 ft. long.

Contour area of land submerged within the bund about 300 bighas. Contents of the reservoir about  $7\frac{3}{4}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 3,839.

## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-00 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Areas expressed in bighas. (Note.—1 bigha = $\frac{1}{2}$ an acre.)					
	Brought forward	786	9,422	15,667	17,704	38,695	21,195	19,346
119	Bhim Nagar bund—							
	<i>Kharif crops</i> ...	...	...	...	...	16	...	30
	<i>Rabi crops</i> ...	...	...	...	...	229	...	172
	<i>Total area cropped on land irrigated.</i> }	...	...	205	30	245	82	202
120	Murki bund No. 1.							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	33
	<i>Rabi crops</i> ...	...	...	...	...	...	...	115
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	39	24	148
121	Murki bund No. 2.							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	3
	<i>Rabi crops</i> ...	...	...	...	...	...	...	344
	<i>Total area cropped on land irrigated.</i> }	...	...	251	251	300	67	347
	Carried over (bighas.)	786	9,422	16,123	17,985	39,279	21,368	20,043

119. The Bhim Nagar bund lies about  $1\frac{1}{2}$  miles north from Biana. Catchment area 1 sq. mile, constructed in 1851 A. D. Frequently breached and repaired. Length of the bund 2,700 ft., top width 3 ft. to 6 ft., slopes 3 to 1 and 2 to 1. There are 2 sluices one of them used as an escape.

Contour area of land submerged within the bund about 350 bighas.  
Contents of the reservoir about 12 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,698.

120. The Murki bund No. 1 lies about 2 miles north from Biana and is proposed to be fed from the Kaml Hauz bund. Catchment area  $\frac{1}{4}$  sq. mile. Restored by the State P. W. D. in 1901 A. D. at a cost of Rs. 2,400. There are 2 sluices and an escape. Length 12 chains, top width 7 ft., slopes 3 to 1 and 2 to 1.

Contour area of land submerged within the bund about 100 bighas.  
Contents of the reservoir about  $3\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 2,400.

121. The Murki bund No 2 lies about 2 miles north-east of Biana. It is fed from the Bhim Nagar bund. Constructed in 1852 A. D., breached in 1881, repaired in 1900. Length 4,000 ft., top width 4 ft., slopes 3 to 1 and 1 to 1. Repairing breaches and sluices, cost Rs. 500. There is only 1 sluice used as an escape.

Contour area of land submerged within the bund about 500 bighas.  
Contents of the reservoir about 13 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 500.



## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. Note—1 bigha = $\frac{1}{3}$ an acre.)						
	Brought forward..	786	9,422	16,123	17,985	39,279	21,368	20,043
122	Murki bund No. 3							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	2
	<i>Rabi crops</i> ...	...	...	...	...	...	...	428
	Total area crop- ped on land irrigated. }	...	...	221	486	296	178	430
123	Kanawar bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	49
	<i>Rabi crops</i> ...	...	...	...	...	...	...	601
	Total area crop- ped on land irrigated. }	219	241	675	398	373	258	650
124	Jalkhor bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	43
	Total area crop- ped on land irrigated. }	...	71	90	52	110	46	43
125	Bagren bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	46
	<i>Rabi crops</i> ...	...	...	...	...	...	...	85
	Total area crop- ped on land irrigated. }	...	72	...	...	72	...	131
	Carried over ... (bighas.)	1,005	9,806	17,109	18,921	40,130	21,850	21,297

122. The Murki bund No. 3 lies about 3 miles north from Biana. It is fed from the Bhim Nagar bund, constructed in 1852, afterwards breached and repaired in 1897. Length 5,900 ft, top width 5 ft., slopes 2 to 1. Cost of work Rs. 500. There is only one sluice used as an escape.

Contour area of land submerged within the bund about 600 bighas. Contents of the reservoir about 17 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 814.

123. The Kanawar bund is situated 3 miles from Biana close to the Biana-Weir road. Catchment area  $3\frac{1}{2}$  sq. miles. Constructed in 1841, afterwards breached and repaired. In 1896—97 the bund was restored by the State P. W. D., the bund being raised and strengthened and the sluices improved at a cost of Rs. 10,806. The bund is now 87 chains long, top width 8 ft., slopes 3 to 2 and 2 to 1. There are 2 sluices and a natural escape passage 200 ft. wide.

Contour area of land submerged within the bund about 600 bighas. Contents of the reservoir about 21 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 16,059.

124. The Jalkhor bund lies about 5 miles from Biana and 5 miles from Weir. Catchment area 1 sq. mile. The bund was constructed in 1883 A. D., length of the bund 3,700 ft., top width 4 ft., slopes 2 to 1. There is only 1 sluice. Natural escape 100 ft. long.

Contour area of land submerged within the bund about 120 bighas. Contents of the reservoir about  $1\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 35.

125. The Bagren bund lies about 5 miles south-west from Biana. Catchment area  $1\frac{1}{2}$  sq. miles, constructed in 1873 A. D., repaired by P. W. D. in 1896 A. D. Length of the bund 1,660 ft., top width 4 ft., slopes 3 to 1 and 2 to 1. Cost of repairs about Rs. 50, no sluice. Natural escape 50 ft. The bund helps the wells.

Contour area of land submerged within the bund about 200 bighas. Contents of the reservoir about  $3\frac{1}{4}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 269.

## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note—1 bigha = $\frac{1}{2}$ an acre.)						
	Brought forward	1,005	9,806	17,109	18,921	40,130	21,850	21,297
126	Khatnawali bund							
	<i>Kharif crops</i> ...	...	...	...	...	8	299	201
	<i>Rabi crops</i> ...	...	...	...	...	896	1,148	1,121
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	904	1,447	1,322
127	Bhagora bund No. 1.—	(Recently restored)						
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	43
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	93	...	43
	Carried over (bighas.) ...	1,005	9,806	17,109	18,921	41,127	23,297	22,662

126. The Khatnawali bund lies 5 miles north-west from Byana, and 5 miles south-east from Weir, in a straight line from south to north. Catchment area 11.50 miles. Constructed in 1855 A. D., frequently breached and repaired, restored in 1,900 A. D. by the State P. W. D. at a cost of about Rs. 16,000, top width 8 ft, inner slope 3 to 1, outer 2 to 1, length of the bund 105 chains, height above the escape level 7 ft. Work done by P. W. D., masonry core walls across the breaches. Raising bank, improvement of sluice, construction of a new sluice, construction of a masonry weir 500 ft. long. There are 3 sluices, the front slope is pitched with stone.

Contour area of land submerged within the bund at escape level about 1,000 bighas. Contents of the reservoir about 43 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 16,649.

127. The Bhagora bund No. 1, is situated 3 miles south-east of Weir. It is an old bund restored by the State P. W. D. in 1902 A. D., at a cost of Rs. 469. A new core wall and escape are constructed. Slope 3 to 1 and 2 to 1. Catchment area about 1 sq. mile.

Contour area of land submerged within the bund about 50 bighas. Contents of the reservoir about 1 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 469 .

## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
			Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)					
	Brought forward	1,005	9,806	17,109	18,921	41,127	23,297	22,662
128	Damdama bund—							
	<i>Kharif crops</i> ...		...	...	...	...	...	51
	<i>Rabi crops</i> ...		...	...	...	...	...	197
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	38	82	248
129	Mehloni bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	10
	<i>Rabi crops</i> ...	...	...	...	...	...	...	104
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	115	218	114
	Carried over (bighas.) ...	1,005	9,806	17,109	18,921	41,280	23,597	23,024

128. The Damdama bund is situated 2 miles north of Biana. It is an old bund restored by the State P. W. D. in 1900 A. D. It was breached in the same year but was restored again in 1901. Length 26 chains, top width 7 ft., height 12 ft., slopes 3 to 1 and 2 to 1. Core walls have been constructed in the deepest places. There is an ample supply, the excess of which is allowed to escape past both ends of the bank towards the Bhim Nagar bund. Catchment area 4 sq. miles.

Contour area of land submerged within the bund about 150 bighas.  
Contents of the reservoir about 5 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 10,341.

129. The Mehloni bund is situated 3 miles west of Biana in hills. It is an old bund restored by the State P. W. D. in 1899 A. D. Length 17 chains, top width 7 ft., height above the escape level 5 ft., front slope 3 to 1, rear 2 to 1. There is only one sluice and a masonry escape 40 ft. long. The bund discharges into the Kanawar bund. Catchment area  $1\frac{1}{4}$  sq miles.

Contour area of land submerged within the bund about 125 bighas.  
Contents of the reservoir about  $2\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 604.

## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{1}{4}$ an acre.)						
130	Brought forward...	1,005	9,806	17,109	18,921	41,280	23,597	23,024
	Ballabgarh bund.		(Restored in 1902 A. D.)					
	<i>Kharif crops</i> ...	...	...	...	...	...	...	63
	<i>Rabi crops</i> ...	...	...	...	...	...	...	102
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	354	129	165
131	Bansi bund—		(Restored in 1900 A. D.)					
	<i>Kharif crops</i> ...	...	...	...	...	...	...	10
	<i>Rabi crops</i> ...	...	...	...	...	...	...	729
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	...	...	739
132	Shahpur bund—		(Restored in 1902 A. D.)					
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	123
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	...	...	123
	Carried over (bighas.) ...	1,005	9,806	17,109	18,921	41,634	23,726	24,051

130. The Balla'garh bund is situated in the Jagir of Ballabgarh, close to the fort of that name. The main part of this bund consists of a heavy masonry dam built across the rocky bed of the stream the flanks being of earth-work. The latter portions were restored and strengthened by the State P. W. D. in 1900 A. D. There are several small sluices in the masonry dam and one sluice in the earth work dam. The surplus flood can escape over the masonry dam or round the flanks without damage, but a sufficient supply has not yet been received to fill the reservoir. Catchment area about 7 sq. miles.

Contour area of land submerged within the bund about 250 bighas.  
Contents of the reservoir about 17 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 4,964.

131. The Bansi bund is situated 4 miles west of Weir. This bund was originally constructed by Maharaja Jaswant Singh. It was breached in Sambat 1950. Its length is 42 chains. The bund was repaired by the State P. W. D. in 1902 A. D. There are two sluices and an escape passage. The bund can be filled from the Lalpur bund. Catchment area 2½ sq. miles.

Contour area of land submerged within the bund about 500 bighas.  
Contents of the reservoir about 15 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,125.

132. The Shahpur bund is situated 2 miles south of the Pahersar village near the Jaipur road, originally constructed by a Muafidar in the time of Maharaja Balwant Singh (Sambat 1900). The bund was breached in Sambat 1930 by the inundation of the Banganga river. Restored by the State P. W. D. in 1902 A. D. The length of the bund is now 83 chains, top width 4 feet, slope 3 to 1 and 2 to 1. It is now fed by the Halena canal. Cost of work done by the State P. W. D., Rs. 2,000.

Contour area of land submerged within the bund about 1,600 bighas.  
Contents of the reservoir about 32 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 2,000.



## Bharatpur State.

## WEIR SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
133	Brought forward...	1,005	9,806	17,109	18,921	41,634	23,726	24,051
	Alipur bund—	(Constructed in 1902 A. D.)						
	<i>Kharif crops</i> ...	...	...	...	...	...	...	63
	<i>Rabi crops</i> ...	...	...	...	...	...	...	68
	Total area cropped on land irrigated. }	...	...	...	...	...	...	131
134	Kaml Hauz bund.	(Constructed in 1901 A. D.)						
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	30
	Total area cropped on land irrigated. }	...	...	...	...	...	...	30
	Carried over ... (bighas.)	1,005	9,806	17,109	18,921	41,634	23,726	24,212

133. The Alipur bund is situated on the north-west border of the State about 18 miles north-west of Weir. It is an old breached bund restored by the State P. W. D. in 1902 A. D. Length 94 chains, top width 4 ft., slopes 3 to 1 and 2 to 1. Catchment area 4 sq. miles.

Contour area of land submerged within the bund about 300 bighas, Contents of the reservoir about 5 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 800.

134. The Kaml Hauz bund is situated close to the town of Biana, across the Maidan nulla where it acts as a crossing for the Biana Bharatpur road. It was breached the same year and was again restored in 1902 A. D. A bank is constructed with a core wall 280 ft. long, and with buttresses 30 ft. high from the base, top width 10 ft., slopes 3 to 1 and 2 to 1. Length 8 chains, height above the escape level 9 ft. The escape 100 ft. wide discharges into the catchment of the Murki bunds. Catchment area 4 sq. miles.

The bund has been fully tested by the heavy flood of 1902 A. D., and has proved thoroughly staunch. It will provide in future a valuable water supply for the town of Biana.

Contour area of land submerged within the bund about 200 bighas, Contents of the reservoir about 14 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 13,980.

## Bharatpur State.

## WEIR SUB-DIVISION.

Statement of cultivated areas irrigated by bunds and channels.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-00 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)						
	Brought forward.	1,005	9,806	17,109	18,921	41,634	23,726	24,212
135	Sita bund—		(Constructed in 1902 A. D.)					
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	...
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	...	...	48
								48
136	Kair bund—		(Constructed in 1902 A. D.)					
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	...
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	...	...	30
								30
Total Weir Sub-Dn. { Bighas.		1,005	9,806	17,109	18,921	41,634	23,726	24,290
{ Acres.		402	3,922	6,844	7,568	16,654	9,490	9,716

135. The Sita bund is situated 3 miles west of Weir, near the Bullabgarh hills. It was an old bund restored by the State P. W. D. in 1902 A. D. There are two sluices and a masonry escape. Top width 4 feet, slope 2 to 1 and 1 to 1. The bund will increase the water level in wells besides irrigating some land in a very poor village. The surplus water after filling the Phoolbari garden at Weir will go to the Mohari bund. Catchment area  $2\frac{1}{2}$  sq. miles.

Contour area of land submerged within the bund about 300 bighas.  
Contents of the reservoir about  $7\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,206.

136. The Kair bund is situated 12 miles west of Biana amongst the hills. It was constructed in the time of Maharaja Jaswant Singh. Length 5 chains, top width 3 feet, slope 2 to 1 and 1 to 1. The bund has a masonry core wall from end to end and a sluice which empties the bund. The bund was repaired by the P. W. D. in 1902 A. D. Catchment area  $3\frac{1}{2}$  sq. miles.

Contour area of land submerged within the bund about 200 bighas.  
Contents of the reservoir about 7 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 74.

*The following is a note of the bunds in the Weir Sub-Division which are breached and not yet repaired, (up to October 1902 A. D.)*

Serial No.	Name of bunds.	Remarks.
137	Khan Khera bund ...	In the Biana Dang. An old bund constructed in Sambat 1940. Worth restoring. It has a core wall.
138	Shergarh bund ...	Constructed in 1850 A. D., 1 mile south of Biana. Catchment area $1\frac{1}{2}$ sq. miles. It is intended to restore this bund.
139	Samraya bund ...	A small zamindari bund, situated $\frac{1}{2}$ mile east of Samraya village between Weir and Biana.
140	Sursena bund ...	Situated 3 miles north of Halena.
141	Kanawar bund No. 2 (pak-ka.)	Constructed in 1850 A. D., situated close to Weir. Catchment area 1 sq. mile.
142	Suhans bund ...	An old bund situated 4 miles east of Weir. Catchment area 1 sq. mile.
143	Ajronda bund ...	An old breached bund subsidiary to Lalpur bund.
144	Samogar bund ...	An old breached village bund situated 4 miles south of Biana. Catchment area 1 sq. mile.
145	Bidiari bund ...	The Bidiari bund is situated 3 miles north of Biana near the Ochain-Biana road. It is an old bund which should be restored, as it can be fed from the Kaml Hauz bund.

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SIKRI SUB-DIVISION.

(Pergunnahs Pahari, Kama, Nagar and Dig.)

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**Bharatpur State.**  
**SIKRI SUB-DIVISION.**

*Statement of areas cultivated after irrigation by bunds and channels.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
	<i>Rainfall in inches measured at Sikri</i>	...	27.03	15.72	15.29	16.65	13.59	22.26
			Areas expressed in bighas. (Note—1 bigha = $\frac{2}{3}$ an acre).					
146	Sikri bund ...	40,447	68,738	37,600	31,414	53,240	32,263	35,305
147	Nagar channel ...	...	4,833	1,659	758	2,225	101	...
148	Boodly bund ...	2,360	...	3,200	4,746	10,069	8,094	8,350
149	Gopalgarh bund ...	113	...	...	885	3,657	2,867	2,100
150	Alampur bund (including Gangora extension.)	...	681	...	98	1,177	595	412
151	Kaithwara bund ...	3,120	4,544	...	2,481	2,901	...	405
152	Ghagwari " ...	450	...	...	211	126	...	...
153	Ramp " ...	668	633	...	304	1,047	...	100
154	Pathrali " ...	...	1,102	...	231	634	...	...
155	Satwari " ...	...	506	...	247	499	...	203
156	Dabak " ...	1,740	3,097	Included in Sikri bund.	605	1,192	...	4
157	Biyari " ...	400	...	366	720	1,101	266	25
158	Dhand " ...	370	...	...	844	428	...	...
159	Kurkan " ...	...	...	198	485	1,567	...	...
160	Dheri " ...	...	...	...	...	343	81	40
161	Papra " ...	314	330	...	637	2,385	362	453
162	Kakra " ...	2,237	921	382	1,034	1,469	445	402
163	Shisham " ...	2,337	1,507	200	...	...	...	10
164	Kuchaoti " ...	609	918	108	...	115	...	...
165	Sublana " ...	1,708	1,389	339	652	3,206	74	200
166	Angraoli " ...	262	158	288	384	1,563	...	...
167	Kalawta " ...	1,477	1,394	...	...	728	930	908
168	Bolkhora " ...	...	45	143	262	518	218	149
169	Ghata " ...	...	75	29	...	55	...	...
170	Home's canal ...	...	...	403	...	32	...	991
171	Pasopa bund ...	...	...	...	...	241	440	260
	Carried over (bighas) ...	58,612	90,871	44,915	46,998	90,518	46,736	50,317

## Bharatpur State.

## SIKRI SUB-DIVISION.—(Concl'd.)

Statement of areas cultivated after irrigation by bunds and channels.

Serial No.	Name of irrigation work.	1896-1897 A. D.	1897-1898 A. D.	1898-1899 A. D.	1899-1900 A. D.	1900-1901 A. D.	1901-1902 A. D.	1902-1903 A. D.
	Rainfall in inches measured at Sikri.	...	27.03	15.72	15.29	16.65	13.59	22.26
			Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre).					
	Brought forward ...	58,612	90,871	44,915	46,998	90,518	46,736	50,317
172	Nigoi bund ...	...	...	...	...	728	594	343
173	Endroli „ ...	...	...	...	...	69	...	20
174	Karmuka „ ...	...	...	...	...	146	955	200
175	Dabora „ ...	...	...	...	...	...	...	58
176	Hayatpur „ ...	...	(Constructed in 1901-02 A. D.)					46
177	Chulehra „ ...	...	...	Do.	do.	...	...	60
178	Baldeobas bund ...	...	...	Do.	do.	...	...	23
179	Murar bund ...	...	...	Do.	do.	...	...	20
	Total Sikri { Bighas ...	58,612	90,871	44,915	46,998	91,461	48,285	51,087
	Sub-Division { Acres ...	23,445	36,318	17,966	18,799	36,581	19,314	20,435





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DETAILS OF IRRIGATION WORKS  
IN THE  
SIKRI SUB-DIVISION.

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## Bharatpur State.

## SIKRI SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-00 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)						
146	Sikri bund—							
	<i>Kharif crops</i> ...	...	...	...	...	28,521	13,092	15,499
	<i>Rabi crops</i> ...	...	...	...	...	24,719	19,171	19,806
	<i>Total area cropped on land irrigated.</i> }	40,447	68,738	37,600	31,414	53,240	32,263	35,305
	Carried over (bighas.) ...	40,447	68,738	37,600	31,414	53,240	32,263	35,305

146. The Sikri bund is situated along the boundary of the Bharatpur and Alwar State. It receives a supply from the Ruparel river. Catchment area 1,000 sq. miles. The Bharatpur State has a formal right to the unimpeded use of the water of this river between the months of June and October, the Alwar State being under agreement not to obstruct the flood by constructing dams within their territory.

The bund was constructed by Maharaja Balwant Singh in 1834 A. D. It has been frequently breached and repaired. When the State P. W. D. took charge of the bund in 1894-95 A. D., there was a large breach through which the floods escaped, swamping the low-lying parts of the Pahari and Kama Pergunnas. In 1894-95 this large breach was repaired by a masonry wall and since then the bund has been gradually raised and strengthened and improved, no breach of any consequence having occurred since that time. The sluices and escapes have been improved so as to admit of better control of the floods. Distributary channels have been constructed. The expenditure on the improvement of the bund since 1894 A. D. up to the end of 1900 A. D., has been Rs. 98,479.

The main dam is now 11 miles long, height of bank about 12 ft., formation width at top 11 ft., front slope 3 to 1, rear slope 2 to 1. The bank is protected by masonry face walls where necessary. It is abundantly planted with trees which consolidate and protect the bank. There are two escape weirs each 200 ft. long and 25 sluices, varying from 6 to 16 ft. in depth, 3 to 6 ft. in width, aggregating 130 ft. in width. There is a large system of subsidiary bunds hereafter described which retain the floods escaping from the sluices. 68,500 bighas of cultivation were irrigated by the bund in 1897 exclusive of irrigation in the subsidiary bunds.

Contour area of land submerged within the bund about 5,000 bighas. Contents of the reservoir about 435 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,44,857.

**Bharatpur State.**  
**SIKRI SUB-DIVISION.**

*Cultivated area measured as irrigated by each irrigation work during the years.*

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{1}{4}$ an acre.)						
	Brought forward..	40,447	68,738	37,600	31,414	53,240	32,263	35,305
147	Nagar channel of Sikri bund—							
	<i>Kharif crops</i> ...	...	...	...	...	1,385	63	...
	<i>Rabi crops</i> ...	...	...	...	...	840	38	...
	<i>Total area cropped on land irrigated.</i> }	...	4,833	1,659	758	2,225	101	...
148	Boodly bund—							
	<i>Kharif crops</i> ...	...	...	...	...	8,460	4,021	4,228
	<i>Rabi crops</i> ...	...	...	...	...	1,609	4,073	4,122
	<i>Total area cropped on land irrigated.</i> }	2,360	...	3,200	4,746	10,069	8,094	8,350
	Carried over (bighas.) ...	42,807	73,571	42,459	36,918	65,534	40,458	43,655

147. The Nagar channel is fed by the Sikri bund. It was constructed by the State P. W. D. in 1895-96 A. D. Length 6 miles, bed-width 14 to 6 ft., furnished with masonry works. 4,833 bighas were irrigated in 1897 A. D., irrigating capacity in a good year 10,000 bighas, but since the construction of the channel no good floods have occurred. The channel is designed to distribute the surplus floods of the Sikri bund in a southerly direction in the Pergunnah of Nagar and thus to relieve the low-lying tracts in the Pahari and Kama Tehsils which were formerly swamped by floods from the Ruparel river.

In seasons of deficient floods there is little or no water available for this channel.

Total expenditure up to the end of 1902 A. D., Rs. 26,127.

148. The Boodly bund is supplied from the Sikri bund by the Jalalia sluice. Length of the bund 23 chains, height 5 ft., width at top 3 to 4 ft. The bund was made by Maharaja Balwant Singh, repaired by the State P. W. D. in 1894-95 A. D. at a cost of Rs. 100.

Contour area of land submerged within the bund about 40 bighas. Contents of the reservoir about 2 million cubic feet.

There are two sluices, one of which is not in working order. Towards the north at the head of the bund there is a channel 6 feet bed-width which irrigates 3 villiges and also serves as an escape.

Total expenditure up to the end of 1902 A. D., Rs. 975.

## Bharatpur State.

## SIKRI SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{1}{8}$ an acre.)						
	Brought forward.	42,807	73,571	42,459	36,918	65,534	40,458	43,655
149	Gopalgarh bund—							
	<i>Kharif crops</i> ...	...	...	...	...	2,759	1,396	1,075
	<i>Rabi crops</i> ...	...	...	...	...	898	1,471	1,025
	<i>Total area cropped on land irrigated.</i> }	113	...	...	885	3,657	2,867	2,100
150	Alampur bund (including Gangora extension).							
	<i>Kharif crops</i> ...	...	...	...	...	690	141	205
	<i>Rabi crops</i> ...	...	...	...	...	487	454	207
	<i>Total area cropped on land irrigated.</i> }	...	681	...	98	1,177	595	412
151	Kethwara bund—							
	<i>Kharif crops</i> ...	...	...	...	...	1,824	...	119
	<i>Rabi crops</i> ...	...	...	...	...	1,077	...	286
	<i>Total area cropped on land irrigated.</i> }	3,120	4,544	...	2,481	2,901	...	405
	Carried over (bighas.)	46,040	78,796	42,459	40,382	73,269	43,920	46,572

149. The Gopalgarh bund is fed by the Sikri bund (Sankhi and Pipal wali sluices) made by Maharaja Balwant Singh and repaired by the State P. W. D. in 1896 A. D. at a cost of Rs. 200. Length 37 chains, height 5 ft., width at top 3 to 4 ft., 113 bighas irrigated in 1896.

Contour area of land submerged within the bund about 60 bighas. Contents of the reservoir about 3 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 347.

150. Alampur bund. Local catchment area 4 sq. miles, also fed by the Sikri bund. The bund was made by Maharaja Balwant Singh in Sambat 1902, afterwards it was breached and abandoned. It was restored by the State P. W. D. in 1895-96 at a cost of Rs. 1,875. Embankment length 3 miles, height 6 ft., width at top 5 ft. The bund requires improvement and extension which will cost about Rs. 3,000. A local catchment of 2 sq. miles can be included by an extension.

The improvement and extension of this bund was completed in 1902 A. D. It will now catch the drainage of the Gangora nulla (2 sq. miles) and the irrigation will thus be increased.

Contour area of land submerged within the bund about 800 bighas. Contents of the reservoir about 42 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 3,421.

151 The Kethwara bund was made in the time of Maharaja Balwant Singh in Sambat 1876 and afterwards it was breached and abandoned. Local catchment 2 sq. miles, and it is fed by the Hosaipur sluice of the Sikri bund. The breaches were repaired by the State P. W. D. in 1895 A. D. at a cost of Rs. 745. Length of the bund  $1\frac{1}{2}$  sq. miles, height 8 ft., width at top  $5\frac{1}{2}$  ft. Cultivable area about 5,000 bighas. The bund may be extended and improved to increase its irrigating capacity.

Contour area of land submerged within the bund about 118 bighas. Contents of the reservoir about  $6\frac{1}{4}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,295.



## Bharatpur State.

## SIKRI SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note—1 bigha = $\frac{2}{3}$ an acre).						
152	Brought forward	46,040	78,796	42,459	40,382	73,269	43,920	46,572
	Ghagwari bund—							
	<i>Kharif crops</i> ...	...	...	...	...	35	...	...
	<i>Rabi crops</i> ...	...	...	...	...	91	...	...
	<i>Total area crop- ped on land irrigated.</i> }	450	...	...	211	126	...	...
153	Ramp bund—							
	<i>Kharif crops</i> ...	...	...	...	...	585	...	...
	<i>Rabi crops</i> ...	...	...	...	...	462	...	100
	<i>Total area crop- ped on land irrigated.</i> }	668	633	...	304	1,047	...	100
154	Pathrali bund—							
	<i>Kharif crops</i> ...	...	...	...	...	398	...	...
	<i>Rabi crops</i> ...	...	...	...	...	236	...	...
	<i>Total area crop- ped on land irrigated.</i> }	...	1,102	...	231	634	...	...
	Carried over (bighas) ...	47,158	80,531	42,459	41,128	75,076	43,920	46,672

152. The Ghagwari bund is fed by the Sikri bund (Bhandar sluice and Kythwara bund) Local catchment about 2 sq. miles. Embankment length 22 chains, height 8 ft., width at top 3 or 4 ft. 450 bighas irrigated in 1896 A. D. Cultivable area 700 bighas. The bund was made in the time of Maharaja Balwant Singh. Petty repairs are made annually. It has no sluice nor escape.

Contour area of land submerged within the bund about 100 bighas. Contents of the reservoir about 5 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 2.

153. The Ramp bund is fed by the Sikri bund (Hosaipur and Kythwara bunds,) embankment length  $13\frac{1}{4}$  sq. miles, height 8 ft., width at top 3 or 4 ft., 668 bighas irrigated in 1896. The bund was made by Maharaja Balwant Singh, and restored by the State P. W. D. at a cost of Rs. 1,441 in 1894-95. Petty repairs have been carried out to improve the sluices.

Contour area of land submerged within the bund about 700 bighas. Contents of the reservoir about 36 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,529.

154. The Pathrali bund also receives a supply from the Sikri bund (*via* Ramp bund) Local catchment 3 sq. miles. Embankment length  $23\frac{1}{4}$  miles, height 7 ft., width 5 to 6 ft. The bund was made by Maharaja Balwant Singh in Sambat 1852, afterwards breached and restored by the State P. W. D. in 1896-97 at a cost of Rs. 1,696. The sluices require improvement.

Contour area of land submerged within the bund about 1,000 bighas. Contents of the reservoir about 35 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 2,091.

## Bharatpur State.

## SIKRI SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)								
155	Brought forward	47,158	80,531	42,459	41,128	75,076	43,920	46,672
	Satwari bund—							
	<i>Kharif crops</i> ...	...	...	...	...	352	...	151
	<i>Rabi crops</i> ..	...	...	...	...	147	...	52
	Total area crop- ped on land irrigated. }	...	506	...	247	499	...	203
156	Dabak bund—							
	<i>Kharif crops</i> ...	...	...	...	...	470	...	...
	<i>Rabi crops</i> ...	...	...	...	...	722	...	4
	Total area crop- ped on land irrigated. }	1,740	3,097	Included in Sikri bund.	605	1,192	...	4
157	Bayari bund—							
	<i>Kharif crops</i> ...	...	...	...	...	336	51	...
	<i>Rabi crops</i> ...	...	...	...	...	765	215	25
	Total area crop- ped on land irrigated. }	400	...	366	720	1,101	266	25
	Carried over (bighas.) ...	49,298	84,134	42,825	42,700	77,868	44,186	46,904

155. The Satwari bund is fed by the Sikri bund. Local catchment 2 sq. miles. Embankment length  $1\frac{1}{4}$  sq. miles, height 9 ft., width at top 15 to 22 ft. The bund was made by Maharaja Balwant Singh, afterwards breached and restored by the State P. W. D. in 1896 A. D. at a cost of Rs. 1,230. The cart road from Kama to Pahari passes over the bund. The sluices require improvement.

Owing to the short supply a channel from the Sikri bund has been constructed in 1902 A. D. A nulla catching drainage from the Bolkhora hills is also made to drain into this bund.

Contour area of land submerged within the bund about 100 bighas. Contents of the reservoir about 5 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,277.

156. The Dabak bund is fed by the Sikri bund (Bhandar sluice.) Length of the bund 45 chains, height 9 ft., width at top 4 to 5 ft. 3,097 bighas irrigated in 1897 A. D., which is the full irrigating capacity of the bund. The bund was made by Maharaja Jaswant Singh, and breached at the same time. It was restored by the State P. W. D. in 1895-96 at a cost of Rs. 646. The bund is in fair order.

Contour area of land submerged within the bund about 350 bighas. Contents of the reservoir about  $18\frac{1}{4}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 3,326 including Dabak channel.

157. The Bayari bund is fed by the Sikri bund (Jesri sluice.) Length of embankment  $\frac{3}{4}$  sq. mile, height 8 ft., width at top 2 to 3 ft. 400 bighas of irrigation done in 1896. The bund was made by Maharaja Balwant Singh. There are several small breaches in it but it is not necessary to restore the bund as the land is irrigated directly by the Sikri bund.

Contour area of land submerged within the bund about 200 bighas. Contents of the reservoir about  $10\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. NIL.

## Bharatpur State.

## SIKRI SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas (Note.—1 bigha = $\frac{2}{3}$ an acre.)						
	Brought forward	49,298	84,134	42,825	42,700	77,868	44,186	46,904
158	Dhand bund—							
	<i>Kharif crops</i> ...	...	...	...	...	86	...	...
	<i>Rabi crops</i> ...	...	...	...	...	342	...	...
	<i>Total area cropped on land irrigated.</i> }	370	...	...	844	428	...	...
159	Kurkan bund—							
	<i>Kharif crops</i> ...	...	...	...	...	1,075	...	...
	<i>Rabi crops</i> ...	...	...	...	...	492	...	...
	<i>Total area cropped on land irrigated.</i> }	...	...	198	485	1,567	...	...
160	Dehri bund—							
	<i>Kharif crops</i> ...	...	...	...	...	36	65	24
	<i>Rabi crops</i> ...	...	...	...	...	307	16	16
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	343	81	40
	Carried over ... (bighas).	49,668	84,134	43,023	44,029	80,206	44,267	46,944

158. The Dhand bund is fed by the Sikri bund (*via* Jesri sluice and Bayari bund.) Embankment length 6 chains, height 8 ft., width at top 6 ft. It was made by Maharaja Balwant Singh in Sambat 1905 (1844 A. D.) and is still in good order.

Contour area of land submerged within the bund about 50 bighas.  
Contents of the reservoir about  $2\frac{2}{3}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs.

159. The Kurkan bund is fed by the Sikri bund (Mahrabi Mori). Embankment length 2 miles, height 8 ft. and width at top 3 or 4 ft. The bund was made by Maharaja Balwant Singh in Sambat 1907 (1849 A. D.) breached in the same year and not since repaired.

Petty repairs were made by the State P. W. D. in 1900-01 A. D. and the bund is now in good order.

Contour area of land submerged within the bund about 300 bighas.  
Contents of the reservoir about  $15\frac{3}{4}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs.

160. The Dehri bund can be fed by the Nagar channel of the Sikri bund. Local catchment 4 sq. miles. The bund was commenced by Maharaja Jaswant Singh but it remained incomplete. It was completed by the State P. W. D. in 1900 A. D. at a cost of Rs. 4,500 estimated.

There is a natural escape passage 200 ft., wide and a sluice.

Contour area of land submerged within the bund about 700 bighas.  
Contents of the reservoir about  $24\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 6,352.

## Bhararpur State.

## SIKRI SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha= $\frac{1}{2}$ an acre.)						
	Brought forward	49,668	84,134	43,023	44,029	80,206	44,267	46,944
161	Papra bund—							
	<i>Kharif crops</i> ...	...	...	...	...	1,738	9	141
	<i>Rabi crops</i> ...	...	...	...	...	647	353	312
	<i>Total area cropped on land irrigated.</i> }	314	330	...	637	2,385	362	453
	Carried over (bighas) ...	49,982	84,464	43,023	44,666	82,591	44,629	47,397

161. The Papra bund is supplied from 4 sq. miles of hilly catchment. The bund was constructed by Maharaja Balwant Singh in 1834 A. D. and breached in the same year. It was restored by the State P. W. D. in 1894-95 at a cost of Rs. 4,310. The length of the bund is 42 chains, height 12 ft., width at top 8 to 6 ft. 330 bighas irrigated in 1897 A. D. It is further necessary to raise the bund and to improve the escape weir and sluices. A project has been prepared to cost Rs. 12,000, but it is being revised to reduce expenditure. If the bund is not raised and strengthened it is sure to be breached by the first heavy flood, the escape power not being sufficient. The work has not been taken in hand on account of the expense.

Contour area of land submerged within the bund about 300 bighas. Contents of the reservoir about  $15\frac{3}{4}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 4,838.



## Bharatpur State.

## SIKRI SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
162	Brought forward	49,982	84,464	43,023	44,666	82,591	44,629	47,397
	Kakra bund—							
	<i>Kharif crops</i> ...	...	...	...	...	569	16	...
	<i>Rabi crops</i> ...	...	...	...	...	900	429	402
	<i>Total area crop- ped on land irrigated.</i> }	2,237	921	382	1,034	1,469	445	402
163	Shisham bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	10
	<i>Rabi crops</i> ...	...	...	...	...	...	...	...
	<i>Total area crop- ped on land irrigated.</i> }	2,337	1,507	200	...	...	...	10
	Carried over (bighas.) ...	54,556	86,892	43,605	45,700	84,060	45,074	47,809

162. The Kakra bund is situated between Kakra and Punchre in the Dig Pergunnah. The local catchment area is about  $2\frac{1}{2}$  sq. miles. The bund is also fed from the Sikri bund in years of good floods. The bund was constructed in the time of Maharaja Balwant Singh. It has been frequently breached. In 1895-96 A. D. the bund was restored and improved by the State P. W. D., since then no breach has occurred. The work done by the State P. W. D. consisted in raising and strengthening the bank, adding a length of core wall and improving the escape weir and sluices. The cost of the work done has amounted to Rs. 9,322, and the bund has since been maintained in good order. The bund is now  $1\frac{1}{4}$  sq. miles long, of which 2,886 ft. in the deep part is protected by a core wall. The top of the bank is 10 ft. wide and 6 ft. above the escape level. There is a good masonry escape weir 107 ft. long.

Contour area of land submerged within the bund about 1,000 bighas.  
Contents of the reservoir about 35 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 10,000.

163. The Shisham bund is situated about 1 mile to the north of Dig extending from Shahpur in a bend round the city crossing the Kama and Goberdhan roads. The local catchment area is about 5 sq. miles and the bund is fed by Home's canal from Kho-ke-dher. The bund was made in the time of Maharaja Jawahir Singh. In 1896-97 it was put in good repair by the State P. W. D., the breaches having been closed and extension added, the cost of the work having been about Rs. 4,200. The bund is a low earthen bank  $4\frac{1}{2}$  sq. miles long furnished with 9 small sluices. It is crossed by 3 road embankments which divide it into compartments. The whole area irrigated is cultivated. The soil is excellent. The rains were very slight in 1897—1900 A. D., and there were no floods.

Contour area of land submerged within the bund about 1,000 bighas.  
Contents of the reservoir about 69 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 6,409.

## Bharatpur State.

## SIKRI SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A.D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.— 1 bigha= $\frac{1}{2}$ an acre.)						
164	Brought forward	54,556	86,892	43,605	15,700	84,060	45,074	47,809
	Kuchaoti bund—							
	<i>Kharif crops</i> ...	...	...	...	..	26	..	...
	<i>Rabi crops</i> ...	...	...	...	...	89	...	...
	<i>Total area crop- ped on land irrigated.</i> }	609	918	108	...	115	...	...
165	Sublana bund—							
	<i>Kharif crops</i> ...	...	...	...	...	392	..	...
	<i>Rabi crops.</i> ...	...	...	...	...	2,814	...	200
	<i>Total area crop- ped on land irrigated.</i> }	1,708	1,389	339	652	3,206	74	200
166	Angraoli bund—							
	<i>Kharif crops</i> ...	...	...	...	...	187	...	...
	<i>Rabi crops</i> ...	...	...	...	...	1,376	...	...
	<i>Total area crop- ped on land irrigated.</i> }	262	158	288	384	1,563	...	...
	Carried over ... (bighas)	57,135	89,357	44,340	46,736	88,944	45,148	48,009

164. The Kuchaoti bund is situated  $\frac{1}{2}$  mile from the Dig city to the west. Local catchment area 5 sq. miles.

The bund is also sometimes fed from the Sikri bund, *via* Dabora and Sarai. It is a very old bund. In 1896 A. D. it was repaired by the P. W. D. at a cost of Rs. 340 and since then it has been maintained in good order. The bund is a low irregular earthen bank  $2\frac{3}{4}$  miles long, there are two old sluices, no escape weir. The whole area irrigated is cultivated.

Contour area of land submerged within the bund about 200 bighas.  
Contents of the reservoir about 21 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 2,556.

165. The Sublana bund is situated near Kama in Chichurwari village. Catchment area 3 sq. miles. It was made in the time of the Maharajas of Jaipur. It was repaired by the State P. W. D. in 1896 at a cost of Rs. 398 and has since been maintained in good order. The bund is a low bank 25 chains long, there is 1 sluice and a weir 40 ft. wide. In an ordinary year the whole area irrigated is cultivated.

Contour area of land submerged within the bund about 2,300 bighas.  
Contents of the reservoir about 161 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 2,299.

166. The Angraoli bund is situated in the Kama pergunnah close to the Byana-Gopalgarh road. It has  $2\frac{1}{2}$  sq. miles of rocky catchment. It was made in the time of the Jaipur occupation of Kama. In 1896 the bund which had been breached and abandoned was repaired at a cost of Rs. 327, and it has since been maintained in good order. The bund is a very strong earthen bank, 11 chains long, furnished with 2 sluices. The whole area irrigated is cultivated. The bund might be improved by raising the bank 3 ft., by fitting grooves to the sluices, &c.

Contour area of land submerged within the bund about 700 bighas.  
Contents of the reservoir about 16 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 456.

## Bharatpur State.

## SIKRI SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)						
167	Brought forward	57,135	89,357	44,340	46,736	88,944	45,148	48,009
	Kalawta bund—							
	<i>Kharif crops</i> ...	...	...	...	...	65	532	410
	<i>Rabi crops</i> ...	...	...	...	...	663	398	498
	Total area cropped on land irrigated.	1,477	1,394	...	...	728	930	908
168	Bolkhora bund—							
	<i>Kharif crops</i> ...	...	...	...	...	24	30	...
	<i>Rabi crops</i> ...	...	...	...	...	494	188	149
	Total area cropped on land irrigated.	...	45	143	262	518	218	149
	Carried over (bighas.)	58,612	90,796	44,483	46,998	90,190	46,296	49,066

167. The Kalawta bund is situated 3 miles to the north of Kama city. The basin of it is a large depression forming a jhil 2 sq. miles in area. The depression is a part of the old valley of the Ruparel river in which local drainage water and floods from the Sikri bund accumulate. Owing to the restoration of the Sikri bund there have been no floods in the valley since A. D. 1897. The greater part of the land flooded is uncultivable owing to want of drainage. The bund was made in the time of Maharaja Jaswant Singh. In years of flood it fills up 8 ft. deep at the bund and 18 ft. deep in the lowest part of jhil. The villagers used to cut the bund to drain out the water for cultivation, but a channel has now been constructed to effect this. The breach was closed in 1896 at a cost of Rs. 462. The bank is 21 chains long furnished with an old sluice. A project is under consideration to make a feeder channel to supply this bund regularly, at the same time draining the swampy land higher up in the old Ruparel valley, but as no floods have occurred lately the project has been deferred.

A project has also been prepared for a new channel 8 miles long from the adjoining British territory Punahna to discharge the surplus canal water of the Hatin distributary and local drainage waters of that neighbourhood into the basin of the Kalawta bund. The local catchment area is  $15\frac{1}{2}$  sq. miles.

Contour area of land submerged within the bund about 8,000 bighas. Contents of the reservoir about 278 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 2,042.

168. The Bolkhora bund is situated on the 5th mile of Kama-Gopalgarh road. It has 2 sq. miles of rocky catchment. The bund was made by Maharaja Jaswant Singh and was afterwards breached and abandoned. In 1896 A. D. it was repaired by the State P. W. D. but it was breached again in the same year. It has been since restored, strengthened and improved, the total expenditure on the work having amounted to Rs. 7,000. The bund now consists of a bank and core wall, 14 chains long, furnished with an escape weir and sluices. The whole area irrigated is cultivable, but the irrigating capacity of the work is not more than 300 bighas. Bunds of this type are comparatively unremunerative.

Contour area of land submerged within the bund about 250 bighas. Contents of the reservoir about 7 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 8,437.

## Bharatpur State.

## SIKRI SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-00 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
Areas expressed in bighas. (Note.—1 bigha = $\frac{2}{3}$ an acre.)								
169	Brought forward.	58,612	90,871	44,483	46,998	90,190	46,296	49,066
	Ghata bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	...
	Total area crop- ped on land irrigated. }	...	75	29	...	55	...	...
170	Home's canal—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	200
	<i>Rabi crops</i> ...	...	...	...	...	...	...	791
	Total area crop- ped on land irrigated. }	...	...	403	...	32	...	991
171	Pasopa bund—							
	<i>Kharif crops</i> ...	...	...	...	...	55	196	...
	<i>Rabi crops</i> ...	...	...	...	...	186	244	260
	Total area crop- ped on land irrigated. }	...	...	...	...	241	440	260
	Carried over (bighas.)	58,612	90,871	44,915	46,998	90,518	46,736	50,317

169. The Ghata bund is situated on the Dig-Kama road 8 miles from Dig. Catchment 1 sq. mile. The bund was made by Maharaja Jaswant Singh. It was repaired by the State P. W. D. in 1896. It is an earthen bank 9 chains long. The soil is sandy.

Contour area of land submerged within the bund about 80 bighas.  
Contents of the reservoir about  $4\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 6,879.

170. *Home's Canal.*—The head of this drainage channel now known as Home's canal is at Kho-ke-Dher near Dig. It was designed and constructed by Captain Home, R. E., in 1867 A. D., in order to drain the jhils between Dig and Bharatpur, and at the same time to feed the Moti jhil and other bunds near the Bharatpur city. The channel is 21 miles long. The bed has been cleared out to a width of 15 ft. by the State P. W. D., the work costing Rs. 1,500. The channel passes through the Shishum bund and is crossed at several places by road and irrigation embankments where the water brought down can be temporarily retained and released by sluices.

Total expenditure up to the end of 1902 A. D., Rs. 1,759.

171. The Pasopa bund is situated 10 miles north-west of Dig. Catchment 4 sq. miles. It is an old bund breached and abandoned. The restoration and improvement of the bund has been done by scarcity labor in 1899-1900. The bund is now  $1\frac{1}{2}$  miles long, width at top 8 ft., height 10 ft. There is one sluice and a natural escape passage 200 ft. wide.

Contour area of land submerged within the bund about 580 bighas.  
Contents of the reservoir about 30 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 4,316.



## Bharatpur State.

## SIKRI SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. (Note.—1 bigha = $\frac{1}{2}$ an acre.)						
172	Brought forward...	58,612	90,871	44,915	46,998	90,518	46,736	50,317
	Nigoi bund—							
	<i>Kharif crops</i> ...	...	...	...	...	115	56	42
	<i>Rabi crops</i> ...	...	...	...	...	613	538	301
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	728	594	343
173	Endroli bund—							
	<i>Kharif crops</i> ...	...	...	...	...	3	...	5
	<i>Rabi crops</i> ...	...	...	...	...	66	...	15
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	69	...	20
174	Karmuka-Nagla bund—							
	<i>Kharif crops</i> ...	...	...	...	...	22	361	14
	<i>Rabi crops</i> ...	...	...	...	...	124	594	186
	<i>Total area cropped on land irrigated.</i> }	...	...	...	...	146	955	200
	Carried over (bighas.) ...	58,612	90,871	44,915	46,998	91,461	48,285	50,880

172. The Nigoi bund is situated 4 miles west of Dig. Catchment 3 sq. miles. An old bund breached and abandoned. The restoration and improvement of the bund has been done by scarcity relief at a cost of Rs. 3,500 in 1899-1900.

The bank is now  $1\frac{1}{4}$  miles long, width at top 8 ft., height 10 ft. There are 2 sluices and a natural escape passage 400 ft. wide.

Contour area of land submerged within the bund about 500 bighas.  
Contents of the reservoir about 27 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 6,175.

173. The Endroli bund is situated near the 10th mile of Dig-Kama road. Catchment 1 sq. mile. A new bund constructed by scarcity relief labor in 1899-1900. An earthen bank, length 38 chains, width 8 ft., height 9 ft. with one sluice and an escape passage.

Contour area of land submerged within the bund about 80 bighas.  
Contents of the reservoir about 4 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 4,006.

174. The Karmu-ka-Nagla bund is situated 9 miles north-west from Dig, 1 mile from Qasba Kho. Catchment 4 sq. miles. It has been constructed by scarcity relief labor in 1899-1900 A. D. It is an earthen bank, 34 chains long, there is a short length of wall across the nulla, top width 8 ft., height 9 ft.

Contour area of land submerged within the bund about 160 bighas.  
Contents of the reservoir about 8 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 5,456.

## Bharatpur State.

## SIKRI SUB-DIVISION.

Cultivated area measured as irrigated by each irrigation work during the years.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
		Areas expressed in bighas. Note—1 bigha = $\frac{2}{3}$ an acre.)						
	Brought forward..	58,612	90,871	44,915	46,998	91,461	48,285	50,880
175	Dabora bund—							
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	58
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	...	...	58
176	Hayatpur bund—							
		(Constructed in 1901-02 A. D.)						
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	46
	<i>Total area crop- ped on land irrigated.</i> }	..	...	...	...	...	...	46
177	Chulehra bund—							
		(Constructed in 1901-02 A. D.)						
	<i>Kharif crops</i> ...	...	...	...	...	...	...	3
	<i>Rabi crops</i> ...	...	...	...	...	...	...	57
	<i>Total area crop- ped on land irrigated.</i> }	...	...	...	...	...	...	60
	Carried over ... (bighas.)	58,612	90,871	44,915	46,998	91,461	48,285	51,044

175. The Dabora bund is situated on the Dig-Nagar road 8 miles from Dig between Bidham and Babasa villages. Catchment 2 sq. miles. The bund was made by Maharaja Jaswant Singh in Sambat 1929. It has been repaired and completed by the State P. W. D. 1896 to 1900 A. D. It is an earthen bank, slope 3 to 1 ft. in front and 2 to 1 ft. on rear, length 1 mile, width 8 ft., height average 7 ft. with one sluice and escape channel 12 ft. broad. The bund is fed by Kakra and Russia Rund floods. The top of bund 4 ft. above the H. F. L. But owing to scanty floods there have been no crops.

Contour area of land submerged within the bund about 630 bighas.  
Contents of the reservoir about 33 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 2,476.

176. The Hayatpur bund is situated in pergunnah Dig 1 mile north-west of Qasba Kho. This was an old breached bund which has been restored through the State P. W. D. by scarcity labour in 1901-02 at a cost of Rs. 600. There are two parts of this bund each 700 feet long. Width at top 6 feet, front slope 3 to 1 and rear slope 2 to 1. It has a sluice and a natural escape 4 feet below the top of the bund. Catchment hilly about 1 sq. mile.

Contour area of land submerged within the bund about 150 bighas.  
Contents of the reservoir about 5 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 748.

177. The Chulehra bund is situated 9 miles north-west of Kho. It is an old bund constructed by Maharaja Balwant Singh, restored by the State P. W. D. in 1901-02 A. D. Length 27 chains; top width 6 feet, front slope 3 to 1, rear slope 2 to 1. There is a pacca sluice and a natural escape passage 200 feet wide. Catchment area 1½ sq. miles.

Contour area of land submerged within the bund about 150 bighas.  
Contents of the reservoir about 9 million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 1,610.

## Bharatpur State.

## SIKRI SUB-DIVISION.

Statement of cultivated areas irrigated by bunds and channels.

Serial No.	Name of irrigation work.	1896-97 A. D.	1897-98 A. D.	1898-99 A. D.	1899-1900 A. D.	1900-01 A. D.	1901-02 A. D.	1902-03 A. D.
178	Brought forward...	58,612	90,871	44,915	46,998	91,461	48,285	51,044
	Baldeobas bund—	(Constructed in 1901-02 A. D.)						
	<i>Kharif crops</i> ...	...	...	...	...	...	...	...
	<i>Rabi crops</i> ...	...	...	...	...	...	...	23
	Total area crop- ped on land irrigated. }	...	...	...	...	...	...	23
179	Murar bund—	(Constructed in 1901-02 A. D.)						
	<i>Kharif crops</i> ...	...	...	...	...	...	...	3
	<i>Rabi crops</i> ...	...	...	...	...	...	...	17
	Total area crop- ped on land irrigated. }	...	...	...	...	...	...	20
Total Sikri Sub-Dn. { Bighas		58,612	90,871	44,915	46,998	91,461	48,285	51,087
{ Acres.		23,445	36,348	17,966	18,799	36,584	19,314	20,435

178. The Baldeobas bund is situated near the Hayatpur bund. An old bund, restored through the State P. W. D. by scarcity labour in 1901-1902 A. D. at a cost of Rs. 538. Length 15 chains, front slope  $2\frac{1}{2}$  to 1, rear slope 2 to 1, width at top 5 ft. There is a natural escape passage 200 ft. wide.

Contour area of land submerged within the bund about 100 bighas. Contents of the reservoir about  $4\frac{1}{2}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 972.

179. The Murar bund is situated about 4 miles east from Kama near the Dig-Kama road. An old bund restored through the State P. W. D. by scarcity labour in 1901-02 A. D. Length of the bund 17 chains, front slope 3 to 1, rear slope 2 to 1, top width 6 ft., the top being 4 ft. high above the escape level. There is a natural escape of 100 ft. width.

Contour area of land submerged within the bund about 75 bighas. Contents of the reservoir about  $3\frac{3}{4}$  million cubic feet.

Total expenditure up to the end of 1902 A. D., Rs. 129.

*The following is a note of the bunds in the Sikri Sub-Division which are breached and not yet restored (up to October 1902 A. D.)*

Serial No.	Name of bunds.	Remarks.
180	Jhal jhalli bund ...	The bund was made by Maharaja Jaswant Singh. It was breached in the same year, the zemindars repair it temporarily. It is capable of irrigating 200 bighas, and it may be restored. Length of bund $\frac{3}{4}$ mile, height 6 ft., width at top 3 or 4 ft.
181	Hebat-ka bund ...	The Hebat-ka bund is fed by the Sikri bund (Chomora and Jalalia sluices, local catchment 2 sq. miles.) The bund was made by Maharaja Balwant Singh and has been breached for a long time. Length 28 chains, height 5 ft., width at top 3 ft., 217 bighas were irrigated in 1898. Irrigating capacity about 300 bighas. The bund requires restoration which would cost about Rs. 3,000.
182	Oorki bund ...	The Oorki bund can be fed by the Sikri bund <i>via</i> Dhand bund. It was made by Maharaja Balwant Singh in Sambat 1908 (1852 A. D.) Length of the bund 20 chains, height 6 ft., width at top 2 ft., irrigating capacity 200 bighas. There is no necessity to repair the bund as the land is irrigated from the Sikri bund direct.
183	Hazari bund ...	The Hazari bund is fed by the Sikri bund (Bhandar wali mori). It was made by Maharaja Churaman, breached in Sambat 1883 (1826 A. D.) and afterwards abandoned. There is no necessity for restoring the bund as the irrigation is controlled by the Sikri bund. Length of bank 1 mile, height 6 ft., width at top 3 to $3\frac{1}{2}$ ft.
184	Imlari bund ...	The Imlari bund is a piece of the abandoned Hazari bund, length 32 chains, height 5 ft., width at top 2 ft. There is no necessity of repairing it.

*Note of the bund in the Sikri Sub-Division not yet repaired.- Contd.*

Serial No.	Name of bund.	Remarks.
185	Gulpara bund	<p>The Gulpara bund is a piece of the abandoned Hazari bund fed by the Sikri bund Jesri sluice. Length of it 1 mile; height 5 ft., width at top 3 ft., no cultivation. There is no necessity of repairing it.</p> <p>These are all breached bunds which are abandoned. As the irrigation by these bunds is now controlled by the Sikri bund, there is no necessity for restoring them.</p>
186	Darwana bund	<p>The length of Darwana bund is 8 chains, height 5 ft., width at top 2 to 3 ft., no cultivation. Cultivable area 200 bighas. The bund can be filled from the Hosaipur sluice of the Sikri bund. The restoration would cost about Rs. 500, and it should be done when the Hosaipur channel is improved.</p>
187	Nagal bund ...	<p>The Nagal bund has 2½ sq. miles of hilly catchment. The bund has a dry stone masonry face wall at front and rear. There is a large breach in the bund and there is no cultivation. It is an old bund breached long ago and never since repaired, irrigating capacity if restored about 200 bighas. The bund is not worth restoring.</p>
188	Ghati bund ...	<p>This is an old breached bund situated on the border of the Alwar State, 4½ miles west of the Sikri village, catchment hilly about 1½ sq. miles. It had a masonry core wall of dry stone but is now quite dilapidated and abandoned. The bund is not worth restoration.</p>
189	Mullanka bund	<p>This is a breached bund situated 4 miles west of Kama near the Murar bund. Catchment 1 sq. mile. It was once restored by the zemindars but it is now breached and abandoned. The zemindars wish it to be restored by the P. W. D. There is no natural escape.</p> <p>The bund can be restored at a cost of Rs. 500, and more than 100 bighas can be commanded.</p>



*Note on the bund in the Sikri Sub-Division not yet repaired.—Contd.*

Serial No.	Name of bund.	Remarks.
190	Baroli bund...	This is an old breached bund situated 5 miles south-west of Kama. Local catchment about 2 sq. miles. The bund was originally constructed by the Mafdar of Mauza Baroli. The zamindars of that village have occasionally repaired this bund during the rains but it has several gaps and does not retain water. It can be restored at a cost of Rs. 2,000 and will then protect about 300 bighas. The length of the bund is 41 chains. It has a sluice and a natural escape.
191	Bansoli bund	This is an old breached bund situated 11 miles north-west of Dig. Catchment area 1 sq. mile. It was originally constructed by the zamindars of Bansoli who want it restored though the bund is not likely to be very useful. Length about 8 chains.
192	Janother bund	This is an old bund breached and abandoned, not worth restoration. Situated 7 miles south-west of Dig.
193	Ustrani bund	This is an old bund breached and abandoned, not worth restoration as the supply is scanty, situated 7 miles north of Kumher. Catchment 2 sq. miles.
194	Ajow-Pawa bund	This bund is situated about 5½ miles south-west of Kumher. An old bund breached and abandoned. There is some supply from the Bahtawli nulla but the bund is not likely to be very useful if restored.
195	Suketra bund	This is a small ruined work situated 3½ miles south of Kumher across Home's canal. It has one sluice. The bund can be filled only in a year of good floods.
196	Sahrai bund	This is an old breached bund hardly worth restoring. The area to be protected small.

*Note of the bund in the Sikri Sub-Division not yet repaired.—Concl'd.*

Serial No.	Name of bund.	Remarks.
197	Thun bund ...	This bund is situated in Tehsil Nagar. Catchment 1 sq. mile, breached and abandoned, not worth restoring.
198	Borai bund ...	This is an old small bund, catchment 1 sq. mile, breached and abandoned, not worth restoring.